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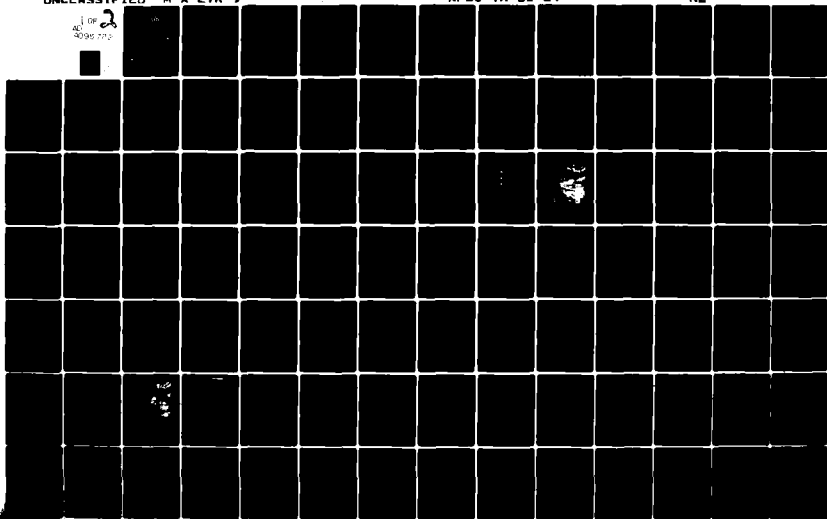
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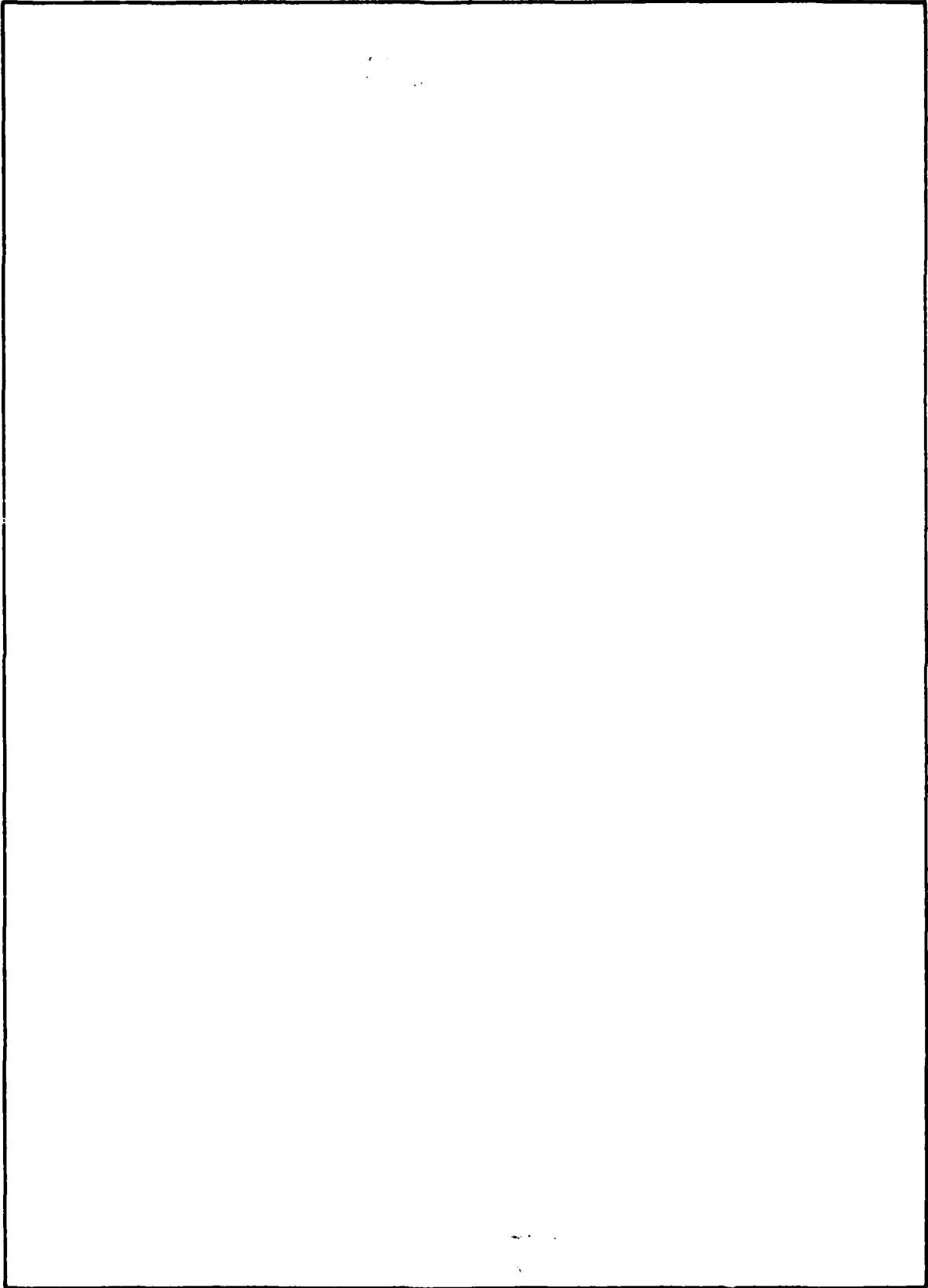
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TABLE OF CONTENTS

	<u>PAGE</u>
1.0 Dalhart and Vicinity Community Environment	1
1.1 Human Environment	1
1.1.1 Economic Activity	1
1.1.2 Public Finance	9
1.1.3 Population	9
1.1.4 Land Use	15
1.1.5 Land Ownership	22
1.1.6 Housing	25
1.1.7 Community Infrastructure	25
1.1.8 Quality of Life	27
1.1.9 Energy Supply	31
1.1.10 Traffic and Transportation	31
1.1.11 Native Americans	33
1.1.12 Archaeological and Historical Resources	33
1.2 Natural Environment	35
1.2.1 Biological Resources	35
1.2.2 Surface Water	36
1.2.3 Groundwater	36
1.2.4 Soils and Slopes	37
1.2.5 Air Quality	38
2.0 Environmental Consequences For The Operating Base Vicinity	40
2.1 Human Environment	40
2.1.1 Effects on Employment (Jobs) and Labor Force	40
2.1.2 Effects on Income and Earnings	44
2.1.3 Effects on Public Finance	44
2.1.4 Effects on Population	48
2.1.5 Effects on Land Use	57
2.1.6 Effects on Land Ownership	62
2.1.7 Effects on Housing	62
2.1.8 Effects on Community Infrastructure	66
2.1.9 Effects on Quality of Life	75
2.1.10 Effects on Energy	80
2.1.11 Effects on Transportation	81
2.1.12 Effects on Native Americans	81
2.1.13 Effects on Archaeological and Historical Resources	83
2.2 Natural Environment	84
2.2.1 Effects on Vegetation	84
2.2.2 Effects on Wildlife	84

	<u>PAGE</u>
2.2.3 Effects on Aquatic Species	85
2.2.4 Effects on Protected Species	85
2.2.5 Effects on Wilderness and Significant Natural Areas	85
2.2.6 Effects on Surface Water	85
2.2.7 Effects on Groundwater Resources	86
2.2.8 Effects on Air Quality	88
2.2.9 Effects on Mining and Geology	88

LIST OF TABLES

<u>NO.</u>		<u>PAGE</u>
1.1.1-1	Total employment and percent share by major economic sectors for counties in Texas, 1976.	3
1.1.1-2	Texas employment growth by sector, study area counties, 1967-1976.	4
1.1.1-3	Earnings by economic sector, Texas counties, 1968-1978.	6
1.1.1-4	Per capita income and earnings shares by economic sector, Texas counties, 1978.	8
1.1.2-1	General fund receipts and expenditures, City of Dalhart, Texas, fiscal year 1976-1977.	10
1.1.2-2	General fund receipts and expenditures, Hartley and Dallam Counties, fiscal year 1976-1977.	11
1.1.2-3	Assessed values, indebtedness, and reserve bonding capacity, Hartley County, 1979.	12
1.1.2-4	Assessed values, indebtedness, and reserve bonding capacity, Dallam County, 1979.	12
1.1.3-1	Selected population characteristics in the Texas deployment region, by county.	13
1.1.3-2	Population change and components of charge, 1960 to 1970 and estimated 1970 to 1976, by county, in New Mexico.	16
1.1.3-3	Projected population and annual rates of population change, by county in the Texas/New Mexico impact region, 1978 to 1994.	18
1.1.4-1	Existing land use in Dallam and Hartley Counties.	19
1.1.4-2	Projected land use in Dallam and Hartley counties, year 2000.	21
1.1.7-1	Summary of educational statistics for study area locations.	26
1.1.7-2	Health services and facilities in study area locations.	28
1.1.7-3	Police protection characteristics in study area locations.	29
1.1.7-4	Fire protection characteristics in study area locations.	30

<u>NO.</u>		<u>PAGE</u>
1.1.8-1	Quality of life indicators, Dallam County.	32
1.2.5-1	Baseline particulate emission rates in Texas.	39
2.1.1-1	M-X-related system employment by place of employment, in Dallam.	41
2.1.1-2	M-X-related system employment by place of employment, in Hartley.	41
2.1.1-3	Total civilian M-X-related employment, available resident labor force, and net civilian labor force impact by place of residence, for Dallam.	43
2.1.1-4	Total civilian M-X-related employment, available resident labor force, and net civilian labor force impact by place of residence, for Hartley.	43
2.1.2-1	M-X-related earnings, in millions of FY 1980 dollars, in Dallam.	45
2.1.2-2	M-X-related earnings, in millions of FY 1980 dollars, in Hartley.	45
2.1.3-1	Local government revenues, expenditures, and net impacts: Dallam.	46
2.1.3-2	Local government revenues, expenditures, and net impacts: Hartley.	47
2.1.3-3	School district revenues, expenditures, and net impacts: Dallam.	49
2.1.3-4	School district revenues, expenditures, and net impacts: Hartley.	50
2.1.3-5	M-X-related capital expenditure requirements: Dallam.	51
2.1.3-6	M-X-related expenditure requirements: Hartley.	52
2.1.4-1	Projected baseline population and cumulative M-X-related in-migration, by alternative, in Hartley.	53
2.1.4-2	Projected baseline population and cumulative M-X-related in-migration, by alternative, in Dallam.	53
2.1.4-3	Projected cumulative population in-migration by project-related employment category, by alternative, in Hartley.	55
2.1.4-4	Projected cumulative population in-migration by project-related employment category, by alternative, in Dallam.	55

<u>NO.</u>		<u>PAGE</u>
2.1.4-5	Projected cumulative population in-migration by place of residence, by alternative, in Hartley.	56
2.1.4-6	Projected cumulative population in-migration by place of residence, by alternative, in Dallam.	56
2.1.5-1	Cumulative M-X-related land requirements by use category, by alternative, in Hartley.	58
2.1.6-1	Land ownership at potential base facilities at Dalhart, Texas.	64
2.1.7-1	Cumulative M-X-related housing unit requirements in local communities by housing type, by alternative, in Hartley.	65
2.1.7-2	Cumulative M-X-related housing unit requirements in local communities by housing type, by alternative, in Dallam.	67
2.1.8-1	Projected baseline and M-X-induced school enrollments by grade level, by alternative, in Hartley.	68
2.1.8-2	Projected baseline and M-X-induced school enrollments by grade level, by alternative, in Dallam.	68
2.1.8-3	Projected baseline and M-X-induced teacher requirements by grade level, by alternative, in Hartley.	70
2.1.8-4	Projected baseline and M-X-induced teacher requirements by grade level, by alternative, in Dallam.	70
2.1.8-5	Projected baseline and M-X-related health services and hospital bed requirements, in Hartley.	71
2.1.8-6	Projected baseline and M-X-related health services and hospital bed requirements, in Dallam.	71
2.1.8-7	Projected baseline and M-X-related requirements for law enforcement personnel by alternative, in Hartley.	73
2.1.8-8	Projected baseline and M-X-related requirements for law enforcement personnel, by alternative, in Dallam.	73
2.1.8-9	Projected baseline and M-X-related requirements for fire protection personnel, by alternative, in Hartley.	74
2.1.8-10	Projected baseline and M-X-related requirements for fire protection personnel, by alternative, in Dallam.	74
2.1.8-11	Project M-X-related land requirements for parks and playgrounds, by alternative, in Hartley.	76

<u>NO.</u>		<u>PAGE</u>
2.1.8-12	Project M-X-related land requirements for parks and playgrounds, by alternative, in Dallam.	76
2.1.8-13	Projected baseline and M-X-related land requirements for solid waste disposal, by alternative, in Hartley.	77
2.1.8-14	Projected baseline and M-X-related land requirements for solid waste disposal, by alternative, in Dallam.	77
2.2.8-1	Dalhart traffic-related pollutant one-hour average concentrations, in mg/m^3 (ppm), 50 m from edge of roadway.	89

LIST OF FIGURES

<u>NO.</u>		<u>PAGE</u>
1.1-1	Location of Dalhart OB in the Texas/New Mexico region of influence (ROI).	2
1.1.4-1	Land use in the Texas/New Mexico region.	23
1.1.10-1	Existing traffic volumes in the vicinity of Dalhart.	34
2.1.5-1	Cropland and operating base in the vicinity of Dalhart, Texas.	60
2.1.5-2	Area of influence for recreation for the Dalhart OB site.	61
2.1.6-1	Land ownership and operating base in the vicinity of Dalhart, Texas.	63
2.1.9-1	Potential changes in the quality of life profiles of Dallam County, Texas.	79
2.1.11-1	Projected traffic volumes in the vicinity of Dalhart, Texas, assuming second operating base.	82
2.2.8-1	Potential fugitive dust impacts due to OB construction.	87

1.0 DALHART AND VICINITY COMMUNITY ENVIRONMENT

The area of analysis (AOA) for the Dalhart operating base option includes Dallam and Hartley counties. The AOA is located in the northern section of the designated region of influence (ROI) as shown in Figure 1.0-1. Dalhart is the major settlement in the AOA although small farming communities are interspersed throughout the two-county area.

1.1 HUMAN ENVIRONMENT

ECONOMIC ACTIVITY (1.1.1)

Employment

Tables 1.1.1-1 and 1.1.1-2 highlight detailed employment characteristics of Dallam and Hartley counties. The former table indicates the relative dependence of the counties' economies on only one sector--agriculture, comprising 30 percent of total 1976 employment in Dallam County and 66 percent in Hartley County. Other sectors, notably manufacturing and services, traditionally dominate a well-balanced economic base; in Dallam and Hartley counties, manufacturing particularly, has a very small employment share and the 1976 share of services employment is well below both state and national averages. Table 1.1.1-2 presents nine-year employment growth figures and indicates that Dallam and Hartley counties have grown very little; employment only increased by 316 jobs in Dallam County and 499 in Hartley County. Agricultural employment grew by 215 jobs and 359 jobs in Dallam and Hartley counties, respectively. Of the other sectors, only government experienced any appreciable gain in both counties while employment in construction, manufacturing and services actually decreased in Dallam County between 1967 and 1976.

Income and Earnings

Real total earnings have exhibited losses in both counties over the 1968-1978 period. Table 1.1.1-3 highlights Dallam and Hartley county's earnings by major industrial sector relative to other Texas ROI counties. It indicates that both counties suffered major earnings losses in agricultural and construction sectors. (Although 1968 earnings in Hartley County are unavailable due to disclosure rules, 1971 data, used to determine growth in earnings, indicate a decline by an average annual rate of 13.2 percent.) However, significant earnings growth in Dallam County manufacturing and Hartley County services industries occurred during the 10-year period.

Table 1.1.1-4 highlights per capita income and earnings shares by major industry in Dallam and Hartley counties. Per capita income in 1978 was \$7,957 in Dallam County, above both the state and national figures. However, Hartley County per capita income was only \$5,104 in 1978, two-thirds that of the Texas and United States averages. By industrial source, agriculture obtained the major share of earnings in both counties, 20 percent in Dallam County and 23 percent in Hartley County. Hartley County services' share was 18 percent, and was above both the state and national averages for that industry. All other sectors in both counties were well below the Texas and United States average earnings shares by industry.

Table 1.1.1-1. Total employment and percent share by major economic sectors for counties in Texas, 1976.

COUNTY	TOTAL EMPLOYMENT	PERCENT OF TOTAL STATE EMPLOYMENT	AGRICULTURE SHARE (PERCENT)	MINING SHARE (PERCENT)	CONSTRUCTION SHARE (PERCENT)	MANUFACTURING SHARE (PERCENT)	SERVICES SHARE (PERCENT)	GOVERNMENT SHARE (PERCENT)
Bailey	3,468	0.06	36.9	(D)	1.9	1.3	10.5	11.3
Castro	4,988	0.09	45.1	(D)	3.8	4.6	7.0	14.0
Cochran	2,092	0.04	43.9	1.1	0.9	2.6	9.2	17.8
Dallam	3,475	0.06	29.9	0.1	2.3	3.7	9.1	11.2
Deaf Smith	9,434	0.17	26.2	0.1	4.2	13.7	8.2	11.8
Hale	15,527	0.27	19.5	0.2	2.9	11.2	13.3	14.6
Hartley	1,356	0.02	65.9	0.0	0.0	0.7	10.8	8.1
Hockley	7,761	0.14	21.3	14.3	2.1	2.2	12.2	16.5
Lamb	7,272	0.13	30.6	0.0	2.7	1.8	11.3	12.3
Lubbock	92,404	1.62	3.2	0.1	4.8	11.8	17.5	20.6
Moore	7,075	0.12	15.8	5.6	6.7	15.2	10.5	13.1
Oldham	1,150	0.02	42.8	(D)	3.8	0.0	14.3	16.6
Parmer	5,539	0.10	47.2	0.0	1.6	9.1	7.1	9.3
Potter/Randall	77,108	1.35	2.3	1.4 ¹	5.3	11.2	16.9	16.1
Sherman	2,179	0.04	53.6	2.7	2.7	0.8	3.5	9.5
Swisher	4,801	0.08	38.0	(D)	1.0	4.5	7.1	12.8
Texas ROI	245,629	4.30	11.3	1.1 ¹	4.4	10.2	15.0	16.8
Total State	5,706,293	100.00	5.1	2.4	5.6	15.0	16.2	18.4
United States	94,685,804		4.5	0.8	3.8	20.1	17.2	18.6

¹Estimated.

²(D) = Not shown to avoid disclosure of confidential information.

Source: BEA, July 1978.

3796-2

Table 1.1.1-2. Texas employment growth by sector, study area counties, 1967-1976. (Page 1 of 2)

COUNTY	TOTAL			AGRICULTURE			MINING		
	1967	1976	Δ^1	1967	1976	Δ	1967	1976	Δ
Bailey	3,656	3,468	-0.6	1,691	1,281	-3.0	1	(D) ²	(D)
Castro	3,989	4,988	2.5	2,138	2,250	0.6	0	(D)	(D)
Cochran	2,247	2,092	-0.8	1,056	918	-1.5	114	22	-16.7
Dallam	3,159	3,475	1.1	823	1,038	2.6	1	4	16.7
Deaf Smith	6,524	9,434	4.2	2,346	2,473	0.6	(D)	6	(D)
Elde	13,875	15,527	1.3	3,469	3,033	-1.5	42	28	-4.4
Hartley	857	1,356	5.2	535	894	5.9	0	0	0.0
Hockley	7,256	7,761	0.8	2,391	1,655	-4.0	836	1,109	3.2
Lamb	6,907	7,272	0.6	2,820	2,222	-2.6	(D)	2	(D)
Lubbock	69,990	92,404	3.1	3,823	2,922	-2.9	68	102	4.6
Moore	5,712	7,075	2.4	818	1,116	3.5	232	399	6.2
Oldham	1,037	1,150	1.2	362	444	2.3	(D)	(D)	(D)
Parmer	4,306	5,539	2.8	2,460	2,616	0.7	(D)	0	(D)
Potter/Randall	72,807	77,108	0.6	1,664	1,781	0.8	874	(D)	2.0 ⁴
Sherman	1,650	2,179	3.1	827	1,167	3.9	21	58	11.9
Swisher	4,584	4,801	0.5	2,008	1,826	-1.1	(D)	(D)	(D)
Texas HOI	283,565	245,629	1.8	29,231	27,636	-0.6	2,189	2,772 ⁶	2.7 ⁴
Total State	4,419,612	5,706,293	2.9	328,978	290,915	-1.4	106,136	137,691	2.9
United States	82,506,400	94,685,804	1.5	4,625,006	4,262,804	-0.9	615,000	777,000	2.6

3790-1

Table 1.1.1-2. Texas employment growth by sector, study area counties, 1967-1976. (Page 2 of 2)

COUNTY	CONSTRUCTION			MANUFACTURING			SERVICES			GOVERNMENT		
	1967	1976	Δ	1967	1976	Δ	1967	1976	Δ	1967	1976	Δ
Bailey	121	66	-6.5	27	46	6.1	304	364	2.0	360	392	1.0
Castro	130	191	4.4	109	229	8.6	313	347	1.2	400	696	6.3
Cochran	(D)	18	(D)	(D)	54	(D)	148	193	3.0	288	373	2.9
Dallam	94	79	-1.9	151	128	-1.8	422	316	-3.2	286	389	3.5
Deaf Smith	182	396	9.0	521	1,292	10.6	607	772	2.7	723	1,110	4.9
Hale	562	449	-2.5	838	1,737	8.4	2,038	2,070	0.2	1,592	2,261	4.0
Hartley	(D)	0	(D)	0	9	—	27	146	20.6	96	110	1.5
Hockley	188	165	-1.4	103	172	5.9	731	949	2.9	934	1,281	3.6
Lamb	77	196	10.9	127	129	0.2	586	820	-0.5	673	892	3.2
Lubbock	3,242	4,452	3.6	6,061	10,949	6.8	12,435	16,192	3.0	13,940	18,994	3.5
Moore	395	471	2.0	1,175	1,072	-1.9	395	744	7.3	798	929	1.7
Oldham	(D)	39	(D)	0	0	0.0	29	148	19.9	114	172	4.7
Parmer	55	88	5.4	128	503	16.4	366	391	0.7	386	517	3.3
Potter/Randall	2,644	4,084	4.9	4,749	8,614	6.8	10,407	13,017	2.5	22,459	12,405	-6.4
Sherman	(D)	58	(D)	9	17	7.3	65	77	1.9	192	207	0.8
Swisher	116	49	-9.1	105	218	8.5	295	342	1.7	475	613	2.9
Texas Tot	7,806	10,781	3.7*	14,103	25,169	6.6	29,168	36,888	2.6	43,716	41,341	-0.6
Total State	213,973	321,143	4.6	665,385	854,662	2.8	698,176	923,660	3.2	811,525	1,047,289	2.9
United States	3,308,000	3,615,000	1.0	19,504,000	19,026,000	-0.3	12,675,000	16,307,000	2.8	13,924,400	17,633,000	2.7

*Δ = Average annual growth rate.

†(D) = Not shown to avoid disclosure of confidential information.

‡(L) = Less than 10 wage and salary jobs.

*Rate in doubt because of large number of data points withheld.

— = Undefined.

*Estimate

Source: BEA, July 1978

3749-1

Table 1.1.1-3. Earnings by economic sector, Texas counties, 1968-1978 (in thousands of 1978 dollars). (Page 1 of 2)

COUNTY	TOTAL EARNINGS			AGRICULTURE			MINING		
	1968	1978	Δ^1	1968	1978	Δ	1968	1978	Δ
Bailey	46,133	35,236	-2.7	28,659	9,186	-10.8	(D) ²	(D)	(D)
Castro	67,020	55,679	-1.8	50,385	26,024	-6.4	(L) ¹	(D)	(D)
Cochran	21,881	14,191	-4.2	13,290	2,618	-15.0	626	1,051	5.3
Dallam	37,425	37,233	-0.1	15,782	7,419	-7.3	(D)	(D)	(D)
Deaf Smith	108,874	124,229	1.3	63,791	40,051	-4.5	72 104	390	25.1 ³
Hale	162,954	160,160	-0.2	67,988	22,898	-10.3	484	77 828	6.1 ⁴
Hartley	14,411	7,439	-6.4	10,592	1,700	-16.7	(L)	0	0.0 ⁵
Hockley	84,476	87,512	0.4	35,799	-1,210	— ⁵	13,461	33,167	9.4
Lamb	86,164	76,582	-1.2	51,347	21,818	-8.2	74 118	259	21.7 ⁶
Lubbock	760,076	1,112,969	3.9	65,730	10,656	-16.6	1,727	6,326	13.9
Moore	83,044	86,374	0.4	18,579	-5,467	— ⁵	4,164	8512 76	9.3 ⁷
Oldham	8,657	12,908	4.1	3,300	5,286	4.8	(D)	(D)	(D)
Parmer	86,481	42,752	-6.8	65,389	4,184	-24.0 ⁸	(L)	0	0.0 ⁹
Potter/Randall	716,753	1,004,891	3.4	18,291	3,956	-24.5	(D)	(D)	(D)
Sherman	32,327	4,846	-17.3	25,296	-6,642	— ⁵	257	2,182	23.8
Swisher	68,147	53,283	-2.4	44,558	24,067	-6.0	167	0	— ¹⁰
Texas HOI	2,384,823	2,916,284	2.0	578,776	166,544	-11.7	20,964 ⁶	54,431 ⁶	10.0 ⁶
Total State	50,632,048	79,094,829	4.6	2,493,921	1,320,190	-6.2	1,965,381	4,331,438	8.2
United States	1,039,655,600	1,318,750,000	2.4	33,188,000	33,188,000	0.1	10,528,125	20,552,000	6.9

3816-2

Table 1.1.1-3. Earnings by economic sector, Texas counties, 1968-1978 (in thousands of 1978 dollars). (Page 2 of 2)

COUNTY	CONSTRUCTION			MANUFACTURING			SERVICES			GOVERNMENT		
	1968	1978	Δ	1968	1978	Δ	1968	1978	Δ	1968	1978	Δ
Bailey	1,134	980	-1.4	849	4,356	17.8	3,105	4,173	3.0	3,302	3,378	1.4
Castro	849	1,671	7.0	1,629	4,169	9.9	3,199	4,256	2.9	3,333	5,199	4.5
Cochran	213	449	11.2	157	938	22.0	1,069	1,758	5.1	2,818	3,010	0.7
Dallam	1,603	855	-6.1	1,043	5,316	17.7	3,741	4,256	1.3	2,933	3,725	2.4
Deaf Smith	4,470	5,407	1.9	7,329	19,767	10.4	6,118	10,629	5.7	7,361	10,658	3.8
Hale	5,406	7,175	2.9	1,031	26,954	10.1	17,998	21,070	1.6	16,551	20,055	1.9
Hartley	920	341	-13.2	144	(1.)	-23.4	218	1,331	19.9	1,050	929	-1.2
Hockley	2,415	4,251	5.8	1,226	2,537	7.5	7,258	8,613	1.7	9,238	13,884	4.9
Lamb	1,444	2,079	4.1	1,524	10,198	20.9	7,335	8,244	1.2	6,060	7,810	2.6
Lubbock	43,952	77,285	5.8	76,528	164,481	8.0	119,109	189,966	4.8	159,724	220,244	3.3
Moore	7,489	7,417	-0.1	21,578	31,140	3.7	5,310	9,333	6.5	8,094	8,749	-0.4
Oldham	1,033	767	-5.8	(1.)	(1.)	0.0	294	2,050	21.4	1,086	1,484	3.2
Parmer	960	2,292	9.1	3,589	12,231	13.0	3,480	5,313	4.3	4,200	4,849	1.4
Potter/Landall	36,501	93,845	9.0	59,919	130,166	8.1	102,053	163,666	4.8	188,184	110,225	-2.0
Sherman	624	1,104	5.9	141	158	1.1	705	1,249	5.9	1,802	1,863	0.3
Swisher	848	1,115	2.8	786	2,432	12.0	3,409	5,164	4.2	4,881	5,525	1.2
Texas DOI	113,554	207,143	6.2	177,445	414,843	8.9	284,401	441,678	4.5	421,613	451,587	0.7
Total State	1,318,426	6,656,905	7.2	10,601,873	15,748,144	4.0	7,048,781	12,276,159	5.7	9,423,238	12,254,386	2.7
United States	62,388,750	79,872,000	2.5	301,999,380	345,771,000	1.3	153,226,880	221,951,000	3.8	174,725,630	216,896,000	2.3

Δ = Average annual growth rate.

(D) = Not shown to avoid disclosure of confidential information.

(L) = Less than 10 wage and salary jobs.

*Rate in doubt because of large number of data points withheld by disclosure rules.

--- = Undefined.

Δ = Estimate.

3816-2

Table 1.1.1-4. Per capita income and earnings shares by economic sector, Texas counties, 1978.

COUNTY	1978 PER CAPITA INCOME	TOTAL 1978 EARNINGS (000's of \$)	PERCENT OF TOTAL STATE EARNINGS	AGRICULTURE SHARE (PERCENT)	MINING SHARE (PERCENT)	CONSTRUCTION SHARE (PERCENT)	MANUFACTURE SHARE (PERCENT)	SERVICES SHARE (PERCENT)	GOVERNMENT SHARE (PERCENT)
Bailey	6,870	35,236	0.04	26.1	(D)	2.8	12.4	11.8	10.7
Castro	6,359	55,679	0.07	46.7	(D)	3.0	7.5	7.6	9.3
Cochran	4,907	14,191	0.02	18.4	7.4	3.2	6.6	12.4	21.2
Dallam	7,957	37,233	0.05	19.9	(D)	2.3	14.3	11.4	10.0
Deaf Smith	8,054	124,229	0.16	32.2	0.3	4.4	15.9	8.6	8.6
Hale	6,683	160,160	0.20	14.3	9.5 ¹	4.5	16.8	13.2	12.5
Hartley	5,104	7,439	0.01	22.9	0.0	4.6	0.1 ¹	17.9	12.5
Hockley	6,070	87,512	0.11	-1.4	37.4	4.8	2.9	9.7	15.6
Lamb	6,822	76,582	0.10	28.5	0.3	2.8 ¹	13.3	10.8	10.2
Lubbock	7,260	1,112,969	1.41	1.0	0.6	6.9	14.8	17.1	19.8
Moore	6,944	86,374	0.11	-6.0	11.8 ¹	8.1	33.9	11.5 ¹	9.5
Oldham	6,403	12,908	0.02	41.0	(D)	5.9	0.1 ¹	15.9	11.5
Parmer	5,767	42,752	0.05	9.8	0.0	5.4	28.6	12.4	11.3
Potter/Randall	8,472	1,004,891	1.27	0.4	(D)	9.3	13.0	16.3	14.0
Sherman	3,214	4,846	0.01	-57.8	19.0	9.6	1.4	9.8	14.6
Swisher	7,702	53,283	0.07	45.2	0.0	2.1	4.6	9.7	10.4
Texas ROI	7,460	2,916,284	3.69	5.7	1.9 ¹	7.1 ¹	14.2	15.1 ¹	15.5
Total State	7,746	79,094,929	100.00	1.7	5.5	8.4	19.9	15.5	15.5
United States	7,840	1,318,750,000		4.4	1.6	6.1	26.2	16.8	16.4

¹Estimated.

?(D) = not shown to avoid disclosure of confidential information.

Source: BEA, July 1980.

3800-2

PUBLIC FINANCE (1.1.2)

Principal local governments in the vicinity of the Dalhart base are the city of Dalhart, and Dallam and Hartley counties.

In the city of Dalhart the combination of property taxes and the 1 percent contribution of sales tax revenues contribute approximately 55 percent of total general fund revenues (Table 1.1.2-1). Only a small percentage of revenues, 8.8 percent, are accounted for by intergovernmental transfers. Police and fire expenditures represent 39.3 percent of general fund expenses with streets and maintenance accounting for an additional 22.9 percent.

Table 1.1.2-2 presents general revenues and expenditures for Dallam and Hartley counties. Sales and property taxes represent 66.9 percent and 58.9 percent of total revenues for Hartley and Dallam counties, respectively, while intergovernmental transfers constitutes less than 22 percent in each of the counties. Expenditures by the two counties are concentrated in transportation and government administrative functions, which together total 69.9 percent of all expenditures in Hartley County and 69.3 percent in Dallam County. Expenditures on public safety functions are relatively low in both counties.

Table 1.1.2-3 and 1.1.2-4 present assessed value indebtedness and reserve bonding capacity for principal local governments in Dallam and Hartley counties. Indebtedness limitations are limited to an amount which produces debt service requirements equal to or less than that which can be paid by a tax rate of \$.40 per \$100 assessed value. The low to moderate assessed valuations in the respective taxing jurisdictions severely limit each jurisdictions' ability to provide services associated with rapid large-scale growth.

In summary, the governmental units in the Dalhart and vicinity area have sufficient resources to provide for sustained low to moderate growth. To the extent that the magnitude of the budget is small and the bonding capacities are relatively low these jurisdictions are limited in dealing with large-scale rapid growth.

POPULATION (1.1.3)

Hartley and Dallam counties, Texas, are the primary area of analysis for the second operating base proposed near Dalhart in Alternative 7, with Moore County and metropolitan Amarillo (Potter and Randall) also included due to the probability of spillover of effects into those areas. Hartley County, the location of the proposed base, had an estimated population of 3,397 in 1977, an increase of 22 percent since 1970. Adjacent Dallam County also experienced moderate population growth from 1970 to 1977, reaching a population of 6,971, an increase of 13 percent since 1970. Dalhart, whose municipal boundaries overlap both counties, had an estimated population of 6,434, about 73 percent of which was in Dallam County. The population of the two sparsely settled counties, which have densities of less than five persons per square mile, is concentrated in Dalhart, with 52 percent of the population of the two counties combined.

Data for 1970 on the spatial distribution and age composition of the populations of Hartley and Dallam counties, shown in Table 1.1.3-1, indicate that about three-quarters of Dallam County's population and one-half of Hartley's was clas-

Table 1.1.2-1. General fund receipts and expenditures, city of Dalhart, Texas, fiscal year 1977-1978.

ITEMS	DOLLARS	PERCENT
REVENUES		
Taxes	332,591	54.96
Property	155,042	
Sales	177,549	
Fines and Forfeitures	20,254	3.34
License and Permits	6,486	1.09
Intergovernmental Transfer	53,124	8.76
Sanitation Fees	116,902	19.32
Other	75,812	12.53
TOTAL REVENUE	605,169	100.00
EXPENDITURES		
Administration	74,298	10.76
Police	200,430	29.04
Fire	70,543	10.22
Streets and Maintenance	156,806	22.72
Parks	42,399	6.14
Sanitation	130,065	18.84
Other	15,752	2.28
TOTAL EXPENDITURE	690,293	100.00

2646

Source: City of Dalhart, Statement of Revenues and Expenditures, 1977-78.

Table 1.1.2-2. General fund receipts and expenditures,
Hartley and Dallam counties, fiscal year
1976-1977.

ITEMS	HARTLEY, TEXAS		DALLAM, TEXAS	
	DOLLARS	PERCENT OF TOTAL	DOLLARS	PERCENT OF TOTAL
GENERAL REVENUE	320,000	100.00	455,000	100.00
Intergovernmental	56,00	17.50	98,000	21.54
Taxes	214,000	66.88	268,000	58.90
Property	127,000		121,000	
Sales	4,000		8,000	
Other	83,000		139,000	
Charges and Misc.	50,000	15.62	89,000	19.56
GENERAL EXPENDITURE	402,000	100.00	476,000	100.00
Education	1,000	.25	16,000	3.36
Transportation	161,000	40.05	147,000	30.88
Public Safety	43,000	10.70	46,000	9.66
Parks and Recreation	24,000	5.97	46,000	9.66
Gov't Administration	120,000	29.85	183,000	38.44
Other	53,000	13.18	38,000	8.00
SALARY AND WAGE	187,000	46.52	209,000	43.91

2645

Source: 1977 Census of Government, Finances of County Governments, U.S.
Department of Commerce, Bureau of the Census.

Table 1.1.2-3. Assessed values, indebtedness, and reserve bonding capacity, Hartley County, 1979.

JURISDICTION	ASSESSED VALUE	GENERAL OBLIGATION INDEBTEDNESS	RESERVE BONDING CAPACITY
Hartley County	\$58,190,089	\$ 25,392	(1)
Dalhart ISD (2)	55,909,000	\$316,666	(1)
City of Dalhart	74,340,000	\$419,213	(1)

3135-1

(1) Tax bonds are limited to an amount which produces debt service requirements equal to or less than that which can be paid by a tax rate of \$.40 per \$100 assessed value.

(2) Independent School District.

Source: Municipal Advisory Council of Texas, 1980.

Table 1.1.2-4. Assessed values, indebtedness, and reserve bonding capacity, Dallam County, 1979.

JURISDICTION	ASSESSED VALUE	GENERAL OBLIGATION INDEBTEDNESS	RESERVE BONDING CAPACITY
Dallam County	\$31,993,081	0	(1)
City of Dalhart	\$74,340,060	\$419,213	(1)
Dalhart ISD ²	\$55,909,000	\$316,666	(1)

3134

(1) Tax bonds are limited to an amount which produced debt service requirements equal to or less than that which can be paid by a tax rate of \$.40 per \$100 assessed value.

²Independent School District.

Source: Municipal Advisory Council of Texas, 1980.

Table 1.1.3-1. Selected population characteristics in
the Texas deployment region, by county.
(Page 1 of 2)

COUNTY	POPULATION				POPULATION DENSITY (Persons/Mi ²) 1975
	1960	1970	1975	1977	
Bailey	9,090	8,487	8,369	7,905	10
Castro	8,923	10,394	10,181	10,592	12
Cochran	6,417	5,326	5,004	4,843	6
Dallam	6,302	6,012	6,533	6,791	4
Deaf Smith	13,187	18,999	19,229	20,138	13
Hale	36,798	34,137	35,732	35,497	36
Hartley	2,171	2,171	3,012	3,397	2
Hockley	22,340	20,396	21,052	21,100	23
Lamb	21,896	17,770	16,992	17,708	17
Lubbock	156,271	179,295	197,248	200,332	221
Moore	14,773	14,060	14,037	15,050	15
Oldham	1,928	2,258	2,711	2,652	2
Parmer	9,583	10,509	10,302	10,225	12
Potter	115,580	90,511	93,462	93,059	104
Randall	33,913	53,885	63,542	66,569	70
Sherman	2,605	3,657	3,541	3,833	4
Swisher	10,607	10,373	10,339	10,160	12
State	9,579,677	11,198,655	12,244,678		47

4035

Table 1.1.3-1. Selected population characteristics in the Texas deployment region, by county. (Page 2 of 2)

COUNTY	RURAL-URBAN DISTRIBUTION			AGE DISTRIBUTION (1970)				MEDIAN AGE (1970) IN YEARS
	PERCENT RURAL FARM	PERCENT RURAL NON-FARM	PERCENT URBAN	PERCENT UNDER 5	PERCENT 5-17	PERCENT 18-64	PERCENT 65+	
Bailey	28.1	18.6	53.3	10.2	29.2	51.7	8.8	26.5
Castro	27.9	32.9	39.4	11.6	34.2	49.1	5.2	20.3
Cochran	21.4	31.6	48.1	9.2	31.8	50.5	8.4	25.1
Dallam	13.4	9.8	75.5	9.0	27.0	57.4	11.4	30.2
Deaf Smith	17.3	12.1	70.6	11.6	31.8	50.3	6.4	22.5
Hale	17.2	21.3	61.1	9.3	29.7	51.6	9.4	26.4
Hartley	17.8	34.6	49.6	7.8	26.3	54.3	11.6	33.6
Hockley	17.7	26.2	56.1	9.1	28.8	54.3	7.8	25.1
Lamb	24.2	38.4	38.5	8.4	28.1	51.3	12.4	31.2
Lubbock	3.4	7.3	89.3	9.3	26.2	58.2	6.3	23.3
Moore	7.8	23.1	69.6	9.6	29.1	56.0	5.1	26.6
Oldham	19.1	80.9	0	6.6	38.2	47.9	7.8	20.7
Parmer	32.6	37.8	28.8	11.0	30.9	51.6	6.6	24.4
Potter	0.7	3.8	95.6	8.5	25.4	56.1	10.0	28.8
Randall	2.5	7.0	90.4	8.6	27.8	59.0	4.7	24.8
Sherman	21.3	78.7	0	9.5	30.5	53.0	7.0	26.3
Swisher	24.7	19.2	55.1	9.1	29.1	51.8	10.0	27.9
State	4.2	16.0	79.8	8.9	26.8	55.4	8.9	26.6

4035

Sources: U.S. Bureau of the Census, City and County Data Book, 1977, 1977 Population Estimates for Counties and Incorporated Places in Texas, (series P.25, No. 856), Nov. 1979; 1970 Census of Population.

sified as urban. About 13 percent and 18 percent of their populations, respectively, were classified as rural-form residents. Both counties had populations whose age structure was slightly older than that in the state of Texas as a whole. Persons of school age constituted 27.0 percent and 26.3 percent of the total population in Dallam and Hartley counties, respectively.

Components of population change including net migration and natural increase, or excess of births over deaths, are presented in Table 1.1.3-2 for the periods 1960 to 1970 and 1970 to 1977. In the period between 1970 and 1977, both Dallam and Hartley counties experienced population growth due to net in-migration as well as natural increase. In Hartley County the Bureau of the Census has estimated that in-migration reached 16.4 percent of its 1970 population, with the rate somewhat lower, about 4.4 percent, in Dallam County. Net in-migration to the state of Texas as a whole was estimated as 6.6 percent of its 1970 population.

Projections of future population, presented in Table 1.1.3-3, indicate a continued pattern of moderate population growth in Hartley and Dallam counties. Hartley County's population is projected to reach about 4,600 by 1994, representing a rate of growth of 2.25 percent annually over the 15 year period from 1978 through 1994. Dallam County, which is forecast to have a growth rate of 1.16 percent annually, is projected to reach a population of almost 8,000 by 1994.

LAND USE (1.1.4)

Community Land Use

The Dalhart urban area straddles the county line between Dallam and Hartley counties. Both counties are members of the Panhandle Regional Planning Commission which is the Regional Planning Agency and the A-95 clearinghouse responsible for planning in the subject region. The local planning activities are implemented under the authority of "Regional Planning Commissions", (1965), Article 1011m, V.A.C.S.; "Planning", Article 1011-1, V.A.C.S.; "Subdivision Regulations", Article 974a, V.A.C.S., Article 1105a, V.A.C.S.; and Article 1175 (26) V.A.C.S., and "Airport Zoning", Article 463-1-et seq, V.A.C.S.

Existing Land Use

The current land use information available for Hartley and Dallam counties is primarily oriented toward regional land uses rather than individual urban land use categories. Table 1.1.4-1 provides 1978 data on the land uses in Hartley and Dallam counties. As can be noted there is virtually no vacant land in either county. The land is primarily utilized for agriculture. Land use information for Dalhart was collected as part of the 1965 city of Dalhart master plan. At that time the land area was identified as 1,470 acres. About two-thirds (990 acres) was developed according to the following categories: residential, about 30 percent; commercial, 6 percent; industrial, 12 percent; public and quasi-public, 6 percent; and streets, 46 percent. About 480 acres in Dalhart was vacant.

Land Use Plans and Zoning

In January of 1978 the Regional Land Resource Management Plan was adopted by the 25-county Panhandle Planning Commission. This plan identified current

Table 1.1.3-2. Population change and components of change, 1960 to 1970 and estimated 1970 to 1976, by county, in New Mexico.
(Page 1 of 2)

COUNTY	ACTUAL POPULATION 1970	POPULATION CHANGE 1960-1970					
		COMPONENTS OF CHANGE				TOTAL CHANGE	
		NATURAL INCREASE		NET MIGRATION			
		NO.	PERCENT	NO.	PERCENT	NO.	PERCENT
Chaves	43,335		20.1		-44.9	-14,314	-24.8
Curry	39,517		23.3		-2.4	6,826	20.9
De Baca	2,547		6.3		-21.1	-444	-14.8
Lea	49,554		15.3		-22.6	-3,875	-7.3
Harding	1,348		7.9		-36.0	-526	-28.1
Quay	10,903		12.1		-23.3	-1,376	-11.2
Roosevelt	16,479		12.9		-11.2	281	1.7
Union	4,925		8.1		-26.9	-1,143	-18.8
State	1,017,055		20.5		-13.6	66,032	6.9

4034

Table 1.1.3-2. Population change and components of change, 1960 to 1970 and estimated 1970 to 1976, by county, in New Mexico. (Page 2 of 2)

COUNTY	ESTIMATED POPULATION 1976 ¹	POPULATION CHANGE 1970-1976 ¹					
		COMPONENTS OF CHANGE				TOTAL CHANGE	
		NATURAL INCREASE		NET MIGRATION			
		NO.	PERCENT	NO.	PERCENT	NO.	PERCENT
Chaves	49,000	1,900	4.5	3,700	8.5	5,600	13.0
Curry	42,700	4,400	11.1	-1,300	-3.2	3,100	7.9
De Baca	2,500	²	-0.5	²	-1.9	-100	-2.4
Harding	1,300	²	-0.2	-100	-3.7	-100	-3.9
Lea	54,400	4,300	7.6	600	1.2	4,900	9.8
Quay	11,200	300	2.9	²	0.1	300	3.0
Roosevelt	16,500	900	5.6	900	5.6	²	-0.1
Union	4,900	100	2.1	-100	-2.0	²	0.1
State	1,168,000	84,000	8.3	67,000	6.6	151,000	14.9

4034

Source: Bureau of the Census, Estimates of the Population of Counties and Metropolitan Areas: July 1, 1975 and 1976; Series p. 25, No. 739.

²Less than 50 persons.

Table 1.1.3-3. Projected population and annual rates of population change, by county in the Texas/New Mexico impact region, 1978 to 1994.

STATE/COUNTY	ESTIMATED POPULATION 1979	PROJECTED POPULATION				PROJECTED ANNUAL RATE OF POPULATION CHANGE			
		1980	1985	1990	1994	1978- 1980	1980- 1985	1985- 1990	1990 1994
Texas									
Bailey	7,700	8,300	8,400	8,490	8,500	3.82	0.24	0.21	0.03
Castro	10,600	10,500	10,700	11,090	11,490	-0.47	0.38	0.72	0.89
Cochran	4,700	5,200	5,200	5,200	5,350	5.18	0.00	0.00	0.71
Dallam	6,700	6,700	7,100	7,500	7,970	0.00	1.17	1.10	1.53
Deaf Smith	20,100	19,700	20,400	21,500	22,530	-1.00	0.70	1.06	1.18
Hale	35,000	37,300	39,300	41,390	43,540	3.23	1.05	1.04	1.27
Hartley	3,300	3,500	3,890	4,290	4,610	2.99	2.14	1.98	1.81
Hockley	21,500	21,500	22,090	22,600	23,150	0.00	0.54	0.46	0.60
Lamb	17,400	17,400	17,400	17,290	17,300	0.00	0.00	-0.13	0.01
Lubbock	200,000	214,100	229,790	243,190	254,410	3.46	1.42	1.14	1.13
Moore	15,000	14,500	14,800	15,190	15,590	-1.68	0.41	0.52	0.65
Oldham	2,600	2,700	2,790	3,000	3,230	1.90	0.66	1.46	1.86
Parmer	10,100	10,300	10,300	10,400	10,710	0.99	0.00	0.19	0.74
Potter/Randall	158,100	162,600	172,780	183,100	192,060	1.41	1.22	1.17	1.20
Sherman	3,700	3,800	3,890	4,000	4,150	1.34	0.47	0.56	0.92
Swisher	10,100	10,500	10,700	11,090	11,570	1.96	0.38	0.72	1.06
17-County Total	528,600	548,600	579,530	609,320	636,160	2.07	1.10	1.01	1.06
State Total	12,014,000	13,393,100	14,452,700	15,593,700	16,615,228	1.45	1.53	1.53	1.60
New Mexico									
Chaves	49,377	51,800	56,100	60,190	63,220	1.61	1.61	1.42	1.24
Curry	41,093	43,600	44,290	44,400	44,070	1.99	0.31	0.05	-0.19
De Baca	2,558	2,600	2,600	2,500	2,500	0.54	0.00	-0.78	0.00
Harding	1,195	1,100	1,000	890	730	-2.72	-1.89	-2.30	-4.83
Quay	11,110	11,200	11,290	11,200	11,030	0.27	0.16	-0.16	-0.38
Roosevelt	16,617	16,500	16,800	17,200	17,510	-0.24	0.36	0.47	0.45
Union	4,937	4,900	4,800	4,900	4,900	-0.25	-0.41	0.41	0.00
7-County Total	126,887	131,700	136,880	141,280	143,960	1.25	0.77	0.63	0.47
State Total	1,196,090	1,266,600	1,403,100	1,539,000	1,638,843	1.93	2.07	1.87	1.58
24-County Region	-	680,300	716,410	750,600	780,120	-	1.04	0.94	0.97

Sources: Texas Department of Water Resources, 1978; Bureau of Business and Economic Research, Univ. of New Mexico, 1979.

4036

Table 1.1.4-1. Existing land use in Dallam and Hartley counties.

LAND USE CATEGORY	DALLAM COUNTY		HARTLEY COUNTY		BI-COUNTY TOTAL	
	ACRES	PERCENT	ACRES	PERCENT	ACRES	PERCENT
Federal Land	77,582	8.1	—	—	77,582	4.1
Urban Land	7,900	0.8	24,678	2.6	32,578	1.7
Water Areas	2,585	0.3	2,200	0.2	4,785	0.3
Rangeland	547,043	7.2	670,565	70.4	1,217,608	63.8
Dryland Crops	227,630	23.8	177,028	18.6	404,658	21.2
Irrigated Crops	85,260	8.9	72,972	7.7	158,232	8.3
Other Uses	8,160	0.9	4,749	0.5	12,909	0.7
Totals	956,160	100.	952,192	100.	1,908,352	100.

2591-1

Source: Panhandle Regional Commission, 1978, "Regional Land Resource Management Plan."

trends in socioeconomic development and established goals and policies aimed at giving guidance and direction to growth in the 25-county area. Further, city and county governments were encouraged to develop implementing ordinances adequate to carry out the planning goals and policies that relate to their particular area. State enabling legislation exists that allows local units of government to adopt plans and ordinances for the purpose of directing local growth and development.

Some of the goals and policies that may be applicable to the development of an M-X missile base in the Panhandle near the city of Dalhart are noted below:

- o Planned growth is encouraged in cities and counties throughout the region.
- o Growth should be encouraged in areas where public and community facilities already exist.
- o Growth should be discouraged in unsuitable areas such as flood plain areas or areas with unsuitable soils.
- o Vacant land in existing cities should be developed before additional expansion takes place.
- o Development of land that is free of incompatible land uses is encouraged.
- o Flood plains and natural drainage areas should be used for open space uses.
- o Agricultural lands should be conserved and protected.
- o Land planning should be coordinated among various planning jurisdictions throughout the region (Panhandle Regional Planning Commission, 1978).

Projections of future land use were made in the plan and are shown in Table 1.1.4-2. In comparison with the existing land use pattern (Table 1.1.4-1), there are several noticeable differences projected for the 20-year planning period. The projections show a reduction in rangeland and dryland crops and a proportionate increase in irrigated cropland due primarily to improvement in irrigating techniques. Further, the projection shows only a very modest increase in urban land needs indicating that low density rural development is expected to continue.

The population of Dallam County is primarily centered in Dalhart (72 percent) and the total population is expected to increase from 6,012 to 6,281 in the 20-year period. Only 354 acres are proposed to be added to the urban pattern over this length of time. In Hartley County, urban land is projected to increase by 7,614 acres.

In urbanized areas, such as Dalhart, two alternative patterns are identified. One is labeled "cluster" growth pattern in which growth takes place around already existing communities. This form of growth uses extensions of existing public facilities and utilities and encourages development of vacant land within the existing community area. It would discourage growth along major highways where most development is presently cropland or other agriculturally-related enterprises.

Table 1.1.4-2. Projected land use in Dallam and Hartley counties, year 2000.

LAND USE CATEGORY	DALLAM COUNTY		HARTLEY COUNTY		BI-COUNTY TOTAL	
	ACRES	PERCENT	ACRES	PERCENT	ACRES	PERCENT
Federal Land	77,582	8.1	—	0	77,582	4.1
Urban Land	8,254	0.9	32,292	3.4	40,546	2.1
Water Areas	2,585	0.3	2,200	0.2	4,785	0.3
Rangeland	451,941	47.3	441,968	46.4	893,909	46.8
Dryland Crops	124,751	13.0	145,983	15.3	270,734	14.2
Irrigated Crops	282,887	29.6	325,000	34.1	607,887	31.8
Other Uses	8,160	0.9	4,749	0.5	12,909	6.8
Totals	956,160	100.	952,192	100.	1,908,352	100.

2592-1

Source: Panhandle Regional Commission, 1978, "Regional Land Resources Management Plan."

The alternative to cluster development is a "corridor" growth pattern. In this pattern, growth takes place along a rather narrow corridor adjacent to the major highway system. This pattern of land use development is expensive in terms of linear extension of utility systems. Often, no utility services are available and septic systems and individual wells provide the services normally associated with community development.

The plan strongly recommended that a land use pattern of cluster growth be encouraged in the Panhandle counties and that the development and implementation of local ordinances work to restrict the amount of corridor growth that is allowed to take place.

The master plan for the city of Dalhart, completed in 1965, discussed the land use categories in Dalhart and the surrounding areas of Dallam and Hartley counties. The growth projections in the Dalhart plan were compatible with the regional plan prepared 13 years later in 1978. Dalhart had developed, up to that time, in a concentrated "cluster" type of development. The 1965 plan recommended that this pattern continue and that the vacant land available for growth in Dalhart should be used before beginning further expansion.

As provided in the Regional Planning Study, the community of Texline in northwestern Dallam County has not prepared a master plan nor established a planning and zoning commission, nor has the community of Channing in southern Hartley County.

Rural Land Use

Land use patterns for the Texas/New Mexico study area are shown in Figure 1.1.4-1. Total land area in Dallam and Hartley counties is approximately 1,908,352 acres. Approximately 93 percent is in agricultural uses. Rangelands constitute the larger portion (63.8 percent), with the remainder as croplands (29.5 percent) (Panhandle Regional Planning Commission, 1978).

Agriculture

There are no croplands located in the immediate vicinity of the proposed OB near Dalhart, Texas. All of the land that will be acquired for the OB site is used for livestock grazing.

Recreation

No recreational sites exist on or near the OB site. All of the land is privately owned and generally not open to any type of public recreational use.

Mining

There are no mining activities in the vicinity of the proposed base.

LAND OWNERSHIP (1.1.5)

About 96 percent of the land area in Dallam and Hartley counties is privately owned and comprises approximately 1,830,770 acres. The remainder, 77,582 acres, is owned by the federal government and is located exclusively in Dallam County.

The proposed OB complex is located in an area that is exclusively in private ownership. No federal or state lands exist within 20 mi of the proposed site.

HOUSING (1.1.6)

Dallam County has had a mixed experience in housing growth over the last two decades. From 1960 to 1970 the number of housing units actually declined from 2,355 to 2,316 units (U.S. Census of Housing, 1970). But from 1970 to 1979 housing recovered, growing at an annual rate of 2.9 percent, to reach an estimated 2,754 units by 1979. The proportion of the county's housing stock in single-family units decreased from 88.6 percent in 1970 to an estimated 73.3 percent in 1979. Conversely, the share of multi-family units and mobile homes increased to 26.7 percent in 1979, from 11.4 percent in 1970.

It is estimated from annual permits authorizing residential construction, that over the 1970 to 1979 period, an average of 44 conventionally built housing units were added to the housing stock each year, with a maximum yearly authorization of 58 units in 1972 (Bureau of the Census, Construction Reports). In 1979 there were an estimated 476 mobile homes in Dallam County, representing 17.3 percent of the housing units. In 1970, the owner-occupancy rate was 65.6 percent. In the same year, almost 92 percent of the housing was located in one community, Dalhart.

Hartley County has had a mixed experience in housing growth over the last two decades. From 1960 to 1970 the number of housing units increased from 751 to 1,003 units (U.S. Census of Housing, 1970). But from 1970 to 1979 there were apparently no housing starts, leaving the county with the same number of units, 1,003, in 1979 (Bureau of the Census, Construction Reports). In 1970, 92.2 percent of the housing stock was in the form of single-family units and 7.8 percent in multi-family units and mobile homes. In 1970 the owner-occupancy rate was 69.2 percent. In the same year most of the housing was located in one community, Dalhart.

COMMUNITY INFRASTRUCTURE (1.1.7)

Organization

The city of Dalhart has a mayor/council form of government with an appointed city manager. Elections for the eight city council seats are held every two years.

Education

Currently, 1,600 pupils are enrolled in the Dalhart Independent School District. Enrollment levels have stayed fairly constant since 1976. Enrollments break down into 467 pupils in the senior high school; 380-400 pupils in the junior high school; and 760 elementary school pupils. Approximately 102 teachers are presently working in the school system (Table 1.1.7-1). The school district could accommodate approximately 100 more pupils, but expansion would be required to accommodate them. There are about 28 acres available for school facility expansion on the edge of town according to the school superintendent.

Health Care


Health care services for Dalhart, Hartley and surrounding communities are provided at Coon Memorial Hospital. The hospital contains 67 acute care and 80


LEGEND


 GEOTECHNICALLY SUITABLE AREAS


 IRRIGATED CROPLAND


 DRY CROPLAND

 0-25 DU/MI²

 26-50 DU/MI²

 51-100 DU/MI²

 1.01-2.5 DU/MI²

 2.51 + DU/MI²
AND MAJOR URBAN
CENTERS

DU = DWELLING UNIT


 STUDY AREA

Table 1.1.7-1. Summary of educational statistics for study area locations.

COUNTY	ENROLLMENTS	EXCESS CAPACITY	TEACHERS	PUPIL/TEACHER RATIO	FUTURE PLANS
¹ White Pine County	1,662	1,060	91	18.3	Not Available
² Clark County	86,479 (1981)	Very Little	3,730	23.1	Development Occurring
³ Iron County	4,052	40	191	21.2	School Bond passed to build new elementary school.
⁴ Beaver County	1,026	650	53	19.4	Not Available
⁵ Willard County	2,176	134	88	24.7	Remodeling Occurring
⁶ Ballam County	1,600	100	102	15.7	Available land for future expansion.
⁷ Curry County	7,850	1,875	417	18.8	Expansion of classrooms at all levels is planned.
⁸ Lincoln County	911	177	54	16.9	Not Available

¹Nevada Department of Education, 1979-80. Enrollment and Certified Personnel Information. Volume 11.
²Research Bulletin, Nevada Department of Education.
³Nevada Department of Education, 1979-80. Enrollment and Certified Personnel Information. Vol. 21.
⁴Research Bulletin, Nevada Department of Education.
⁵Iron County School District, 20 May 1980. C. Morris, School Superintendent - Telephone Communication.
⁶Beaver County School District, 20 May 1980. L. Haslam, School Superintendent - Telephone Communication.
⁷Willard County School District, 20 May 1980. Ken Topham, School Superintendent - Telephone Communication.
⁸Ballam Independent School District, 22 May 1980. D. Williams, School Superintendent - Telephone Communication.
⁹Las Vegas Air Force Base Environmental Coordinator, 1975. Tab A-1. Environmental Narrative, Clovis, New Mexico.
¹⁰Nevada Department of the Interior BLM, Social-Economic Profile, Lincoln County, July 1976.

extended care beds. Five doctors, 20 LVNs and 10 RN's staff the hospital. Three part-time mental health workers, four dentists and approximately 43 support personnel also serve the community. Because of a recent increase in the population of Dalhart, the present health care facilities are inadequate, and plans to double the number of hospital beds and physicians are in process (Table 1.1.7-2).

Public Safety

There are seven policemen serving Dallam County, 14 sheriffs, and four state troopers as shown in Table 1.1.7-3. Hartley County has available only two sheriffs for the area. These law enforcement officers have a limited amount of equipment and one jail, which is located in Dallam County.

Currently, the Dalhart fire department is made up of 30 volunteers and one paid staff person. The fire department operates two 1,500-gallon pumpers, one back-up pumper truck, a 250-gallon mini-pumper and five 4-wheel drive cars. The fire department has a mutual aid agreement with Hartley to support their department with manpower when necessary. Dalhart has a good key rating for a town of its size which is protected only by a volunteer department. Table 1.1.7-4 presents fire protection information for the Dalhart Community.

Water Supply and Distribution

Dalhart obtains its current water supply from six wells ranging in size from 600-750 gpm. Three additional wells are available on a standby basis. Total capacity is 4,650 gpm. Pumped water receives no treatment except chlorination before entering the distribution system. The city has elevated storage capacity of 0.75 mg and ground level storage of 1.15 mg. The system is experiencing no problems and appears adequate for the near future. Peak day use of 3 mgd occurred in June 1980 during the drought. Normal winter use is 0.85 mgd.

Wastewater Collection and Treatment

Wastewater treatment for the city is provided by an oxidation ditch with 1 mgd capacity. The plant discharges to Rita Blanca Lake and meets an effluent standard of 20 mg/l BOD and 20 mg/l SS. There are no reported problems with the facilities nor are there any plans for expansion.

Solid Waste

Dalhart's waste disposal site, which opened in 1979, is maintained by the city and used by both city and county residents. The capacity of the 80-acre waste disposal site in Dalhart will serve the current population for approximately 70 years. At present, only 2-3 acres have been used.

Parks and Recreation

Dalhart has two city parks with playgrounds and one city swimming pool.

QUALITY OF LIFE (1.1.8)

Dallam County is a fairly typical Texas Panhandle County with an economic base that is heavily dependent on agriculture. Thus, agrarian lifestyles

Table 1.1.7-2. Health services and facilities in study area locations.

COUNTY/ COMMUNITY	HOSPITAL FACILITIES	PHYSICIANS	RN, LVN, LPN	DENTISTS	MENTAL HEALTH WORKERS	COMMENTS
White Pine County/ Ely ¹	43 Acute 99 Skilled Nursing	4	19 RN 10 LPN 46 Aids	3	6	Nursing home under construction; 99-bed capacity
Clark County/ Coyote Springs ² Area	1,778 Acute 919 Long- Term	508 (78 ¹)	1,412 RN 594 LPN	163	N/A	
Iron County/Beryl and Vicinity ³	73 Acute	15	35 Nurses	10	2	Community has excess capacity in hospital. Present utilization rate is less than 50 percent.
Beaver County/ Milford and Vicinity ⁴	12 Acute 20 Long-Term	1	6 RN 2 LPN	1 Part-time	0	
Millard County/ Delta and Vicinity ⁵	18 Acute 18 Long-Term	5	7 RN 6 LPN	4	2	
Dallam and Hartley Counties/Dalhart and Vicinity ⁶	67 Acute 80 Long-Term	5	10 RN 20 LVN	4	N/A	Expansion plans are in process to double the number of doctors and hospital beds in area.
Curry County/Clovis and Vicinity ⁷	106 Acute 100 beds at Cannon AFB	22	110 Nurses	18	12	Hospital utilized at 65 percent.
Lincoln County/ Panaca, Pioche, Caliente and Vicinity ⁸	10 Acute 9 Skilled Nursing	2	6 RN	1	N/A	

¹Nevada Bureau of Business and Economic Research, July 1977. Socioeconomic Analysis of the White Pine Power Project. Reno, Nevada.

²Clark County Health District, 6 June 1980. A. Dague, Health Planner, Telephone Communication.

³Bureau of Economic and Business Research, 1979. Community Economic Facts—Cedar City.

⁴Wilford Valley Memorial Hospital, 6 June 1980. J. Williams, Director of Nursing, Telephone Communication.

⁵Architects/Planners Alliance, Inc., 1979. Socioeconomic Analysis—Lynndyl Alternative Site, Salt Lake City.

⁶Dalhart Hospital, 6 June 1980. A. Peterson, Director of Nursing, Telephone Communication.

⁷Clovis High Plains Hospital, 6 June 1980. S. Grigsby, Director of Nursing, Telephone Communication.

⁸U.S. Department of Interior (BLM), Social-Economic Profile, Lincoln County, July 1976.

1348-2

Table 1.1.7-3. Police protection characteristics in study area locations.

COUNTY/COMMUNITY	POLICE OFFICERS	SHERIFF	HIGHWAY PATROL
White Pine County ¹ Ely and vicinity	14	15	3
Clark County ² Coyote Springs area	738	Serves Area	Serves Area
Iron County ³ Beryl and vicinity	15	Serves Area	Serves Area
Beaver County ⁴ Milford and vicinity	2	Serves Area	Serves Area
Millard County ⁵ Delta and vicinity	3	4	6
Dallam/Hartley Counties ⁶ Dalhart and Vicinity	7 (Dallam) 0 (Hartley)	14 (Dallam) 2 (Hartley)	4 (Dallam) 0 (Hartley)
Curry County ⁷ Clovis and Vicinity	72	Serves Area	Serves Area
Lincoln County ⁸ Panaca, Pioche, Caliente	6	7	1

1343-1

¹White Pine County Sheriff's Department, 5 June, 1980. M. Burns, Deputy, telephone conversation.

²Las Vegas Police Department, 5 June 1980. Officer Bottomly, Personnel Officer, telephone conversation.

³Bureau of Economic and Business Research, 1979, Community Economic Facts—Cedar City.

⁴Five County Association of Governments, 1976, *Planning for Growth in Beaver County*, Beaver County Planning and Development Agency.

⁵Architects/Planners Alliance Inc. 1979. Socioeconomic Analysis—Lynndyl Alternative Site, Salt Lake City.

⁶Panhandle Regional Planning Commission, 22 May 1980. M. Kenderdine, Planner, telephone conversation.

⁷Clovis Police Department, 5 June 1980, Y. Garcia, Secretary I, telephone conversation.

⁸U.S. Department of Interior (BLM), Social-Economic Profile, Lincoln County, July 1976.

Table 1.1.7-4. Fire protection characteristics in study area locations.

COUNTY/COMMUNITY	FULLTIME FIRE DEPARTMENT	VOLUNTEER FIRE DEPARTMENT	FIRE INSURANCE RATING	COMMENTS (EQUIPMENT, ETC.)
White Pine County, Ely	5 Paid Staff	45 Volunteers	5	Rescue mini pumper, 250 gallon capacity 1300 gallon/minute pumper, 1000 gallon capacity 1350 gallon/minute 3 GMC tank/pumper combination 650 gallon/minute La France, 240 gallon capacity 350 gallon/minute La France, 240 gallon capacity 750 gallon/minute pumper, 500 gallon capacity 1500 gallon/minute Walter Foam Truck
Clark County, Las Vegas	254 Fire Fighters		3 (will move into "2" rating soon)	9 Fire trucks and 2 snorkler trucks.
Iron County, Cedar City	3 paid staff	32 Volunteers	5	4 pumper trucks (1,250 and 750 gallon) 2 brush trucks 1 crash truck at airport 1 snorkle truck Several ambulances
Beaver County, Milford		High School Students act as Volunteer Fireman	7	Several pumper trucks
Millard County, Delta		25 Volunteer	7	3 pumper trucks (500, 750, and 1,000 gallon)
Fillmore		30 Volunteers	7	3 pumper trucks (500, 750, and 250 gallon)
Dallam and Hartley Dalhart	1 paid staff	30 Volunteers	2 1/2 Key Rating Rating Range from 1 1/2 (excellent) to \$1.00 (poor)	Two 1,500-gallon pumper trucks One 250-gallon mini-pumper One back-up pumper (old) Five 4-wheel drive vehicles
Curry County Clovis	75 Fireman (EMP trained)		6 (will move into a "4" soon)	Eight 1,500-gallon pumpers Two snorkle units One crash truck and several ambulances
Lincoln County ^a Panaca, Pioche, Caliente		55-60 Volunteers	7 Pioche, Caliente 8-Panaca	One 250-gallon pumper Four 500-gallon pumpers One 450-gallon pumper Two 125-gallon slip on units

1350-1

^aEly Fire Department, 5 June 1980. E. Rachle, Dispatcher, telephone conversation.

^bLas Vegas Fire Department, 5 June 1980. R. Horrocks, Chief Secretary, telephone conversation.

^cCedar City Fire Department, 6 June 1980. C. Neilson, Fire Marshall, telephone conversation.

^dFive County Association of Governments, 1976, Planning for Growth in Beaver County, Beaver County Planning and Development Council.

^eArchitects/Planners Alliance Inc., 1979, Socioeconomic Analysis: Lynndyl Alternative Site, Salt Lake City.

^fDalhart Fire Department, 10 June 1980. M. Stipe, Fire Chief, telephone conversation.

^gClovis Fire Department, 10 June 1980. J. Carter, Fire Chief, telephone conversation.

^hU.S. Department of Interior (BLM), Social-Economic Profile, Lincoln County, July 1976.

and values tend to predominate in the area. The county had a 5.8 percent increase in population between 1970 and 1975 after losing 4.6 percent between 1960 and 1970, thus reversing the earlier decade's period of net out-migration. Its economic growth, however, is still slow with a per capita income of only \$3,866 in 1970, some 43 percent below the Texas average. (Table 1.1.8-1)

Dallam County does better than the state on unemployment (with a 4.5 percent rate, compared to 5.3 percent for Texas), but worse than the state on the proportion of the population on public assistance (20.4 percent versus 18.6 percent). Dallam County does not compare favorably with the state on some of the community service indices. For example, the county has fewer doctors, nurses, dentists, and hospital beds per 1,000 population than Texas. The divorce rate (6.9 per 1,000) was 10 percent higher than the Texas average in 1970.

However, the county does have a high level of cultural and ethnic homogeneity, and its social organization indicators shows Dallam to be a stable community. For example, while the suicide rate (11.9 per 1,000) is the same as the state average, crime rates are 57 percent below, and alcohol and substance abuse is 32 percent below the state figure (Table 1.1.8-1).

Hartley County is also a Panhandle county that is heavily reliant on agriculture. The county's rate of population growth increased between 1970 and 1975 to an average of 3.36 percent per annum, up from 2.81 percent per annum between 1960 and 1970. Its economic growth, however, was still low, with a per capita income of only \$4,611 in 1970, some 32 percent below the Texas average. Hartley County does better than the state on unemployment (a 2.1 percent rate compared to 5.3 percent for Texas) and with the proportion of population on public assistance (7.4 percent versus 18.6 percent). Hartley County does not compare as favorably with the state average on some of the community service indices, however. For example, the county has fewer health care services per 1,000 population than the state average.

However, the county does have much lower crime, alcohol and substance abuse, and divorce rates than the Texas average, with rates that are 56, 32, and 25 percent below the state average, respectively. These figures indicate a stable, healthy level of community cohesion, (Table 1.1.8-1).

ENERGY SUPPLY (1.1.9)

The Dalhart area is served by Pioneer Natural Gas company of Amarillo and by Peoples Natural Gas. Because Dalhart is located in a major gas producing area, natural gas supplies are excellent. Because a large petroleum refining center is located approximately 75 mi southeast of Dalhart at Amarillo, petroleum product supplies should be adequate to supply the increased fuel demand.

Electrical energy is supplied to Dalhart by Southwestern Public Service Company via a 115 KV transmission line and a 69 KV transmission line. The present peak electrical demand of Dalhart is approximately 30 MW.

TRAFFIC AND TRANSPORTATION (1.1.10)

The proposed base site is 10 mi southwest of the town of Dalhart. It lies alongside U.S. Highway 54, which is the only major route near the site. U.S.

Table 1.1.8-1. Quality of life indicators, Dallam county.

	WHITE PINE CO. (ELY)	CLARK CO. (KANE SPRINGS)	IRON CO. (BERYL)	BEAVER CO. (MILFORD)	MILLARD CO. (DELTA)	CURRY CO. (CLOVIS)	DALLAM CO. (DALHART)	HARTLEY CO. (DALHART)
Population								
Annual Rate of Growth (1970-1977) ^{1,5,11}	-1.2	4.0	2.9	1.6	2.5	2.0	1.7	1.6
Population Density (1977) ^{1,9,11}	.9	45.7	4.4	1.7	1.2	31.0	4.4	2.0
Housing								
Percent of Dwelling Units Owner Occupied (1970) ¹¹	72.8	58.0	70.5	82.5	85.5	59.4	65.6	69.2
Percent of Housing Units with More than 1.01% per Room (1970) ¹¹	12.6	8.9	9.5	6.1	10.3	10.5	8.6	11.5
Mobile Homes or Trailers as Percent of Housing Units (1970)	12.1	11.0	8.4	4.1	2.8	NA	NA	NA
Median Home Value (1970) ¹¹	10,497	23,142	16,487	12,081	10,519	13,025	7,358	16,919
Economics								
Civilian Labor Force Growth Rate (1970-1977) ⁹	-1.4	6.3	5.8	4.1	3.3	1.1	5.3	13.9
Unemployment Rate (1977) ⁹	7.8	8.1	6.2	7.0	4.7	4.3	4.5	2.1
Per Capita Income (1977) ⁹	9,368	7,735	4,693	5,114	3,978	3,687	3,866	4,611
Proportion of Population on Public Assistance (1976) ¹¹	15.6	15.5	13.3	18.1	20.1	17.6	20.4	7.4
Health								
Physicians/1,000 Population (1976)	0.3	1.2	0.7	1.0	0.5	0.7	0.6	0.0
Dentists/1,000 Population (1976)	0.3	0.4	1.0	0.9	0.3	0.5	.3	.3
Registered Nurses/1,000 Population (1976)	3.1	3.2	3.8	5.3	2.5	4.2	5.4	5.4
Hospital Beds/1,000 Population (1976)	4.4	4.7	3.6	5.6	4.5	3.0	6.9	0.0
Public Safety								
Police Officers/1,000 Population (1976) ¹	2.8	3.4	1.8	1.0	1.1	2.0	NA	NA
Fireman/1,000 Population	NA	NA	NA	NA	NA	NA	NA	NA
Violent Crimes/1,000 Population (1976) ¹	4.6	9.6	1.5	1.5	1.5	2.3	1.4	1.4
Crimes Against Property/1,000 Population (1976) ¹	34.5	84.9	21.1	21.1	21.1	15.4	14.6	14.6
Social Disorganization								
Divorce Rates/1,000 Population (1975) ¹¹	11.2	16.6	3.5	3.7	1.7	6.3	6.9	4.7
Suicide Rate/1,000 Population (1976) ¹¹	60.0	23.3	3.0	9.4	9.4	18.3	11.9	11.9
Alcoholism Rate/1,000 Population (1976) ¹¹	38.3	46.0	22.8	22.8	19.3	18.1	19.1	19.1
Education								
Median School Year Completed (1976) ¹	12.1	12.4	12.8	12.3	12.4	12.2	11.3	12.4
Pupil/Teacher Ratio	21.2	25.0	24.8	21.2	23.4	22.3	15.7	15.7

U.S. Dept. of Commerce, Statistical Abstract of the United States, 1978.

B45R-1

Nevada Dept. of Education, 1979, Research Bulletin, Vol. 21, No. 1

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U.S. Bureau of the Census, 1977, City and County Data Book, 1978.

Nevada Office of Health Planning and Resources, 1977, Nevada State Plan for Health.

United States Dept. of Justice, 1977, Uniform Crime Rates for the United States-1977, U.S. GPO, 1978.

U.S. Bureau of the Census, 1977, County and City Data Book, 1979.

Highway 385 runs north and south through Dalhart and provides access to Dumas, 48 mi to the east via U.S. Highway 87, and Amarillo, 100 mi to the southeast.

Figure 1.1.10-1 is a schematic map showing the major roads in the vicinity and 1975 traffic volumes. All of the existing roads in the area are good quality two-lane roads that presently operate at a good level of service. U.S. 54 has average daily traffic of 1,830 near the proposed site, and U.S. 385 has an average daily traffic of 4,300 south of Dalhart. There is also an existing low volume county road, which runs west from Hartley and passes near the proposed site. It is assumed that a connection would be made to the base from this road.

NATIVE AMERICANS (1.1.11)

Historic aboriginal habitation areas associated with Apache and Comanche peoples are known for the North and South Canadian Rivers, which flank the Dalhart area, but few Apache or Comanche material remains have been documented for that area of the Llano Estacado to the south.

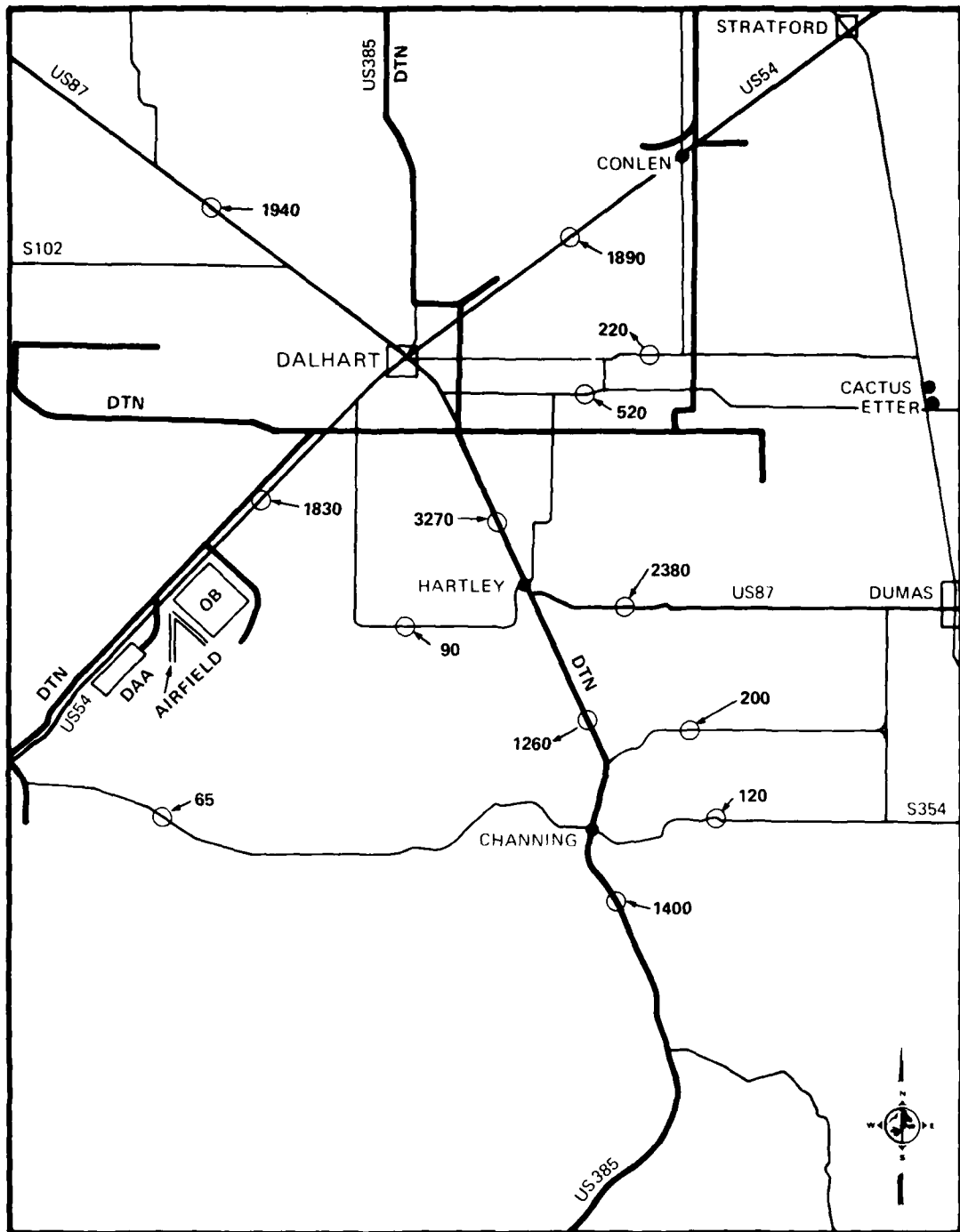
There are no Native American communities or Indian reservations in the Dalhart vicinity.

ARCHAEOLOGICAL AND HISTORICAL RESOURCES (1.1.12)

Dallam and Hartley counties include areas inhabited by hunter-gatherers for the last 12,000 years and by sedentary agriculturalists for part of that time. Very little is known about the archaeological resources of this area; a total of 16 sites have been recorded there. However, this is a function of the lack of research in the area rather than of a lack of resources, as nearby Potter County, where more work has been done, contains 410 recorded sites.

Archaeological resources in Dallam County are predicted to be particularly concentrated along Coldwater, Rita Blanca, Perica, and Carrizo Creeks as well as adjacent to the playas there. Hartley County is particularly liable to contain permanent villages of the Panhandle Aspect. Nineteen percent of Hartley County and 24 percent of Dallam County are either of high or moderate predicted archaeological sensitivity (totalling 163 mi² of high sensitivity and 492 mi² of moderate sensitivity).

The historic period in this area begins with Spanish explorers, traders, and missionaries in the middle to late 1500's. Later occupation included herding and ranching in the late 1800's and ranching and farming thereafter. Sheltered drainage-ways such as those along the major creeks in this area are particularly likely to contain remains from any or all of these periods. Other remains may be associated with other water sources as well as near, anywhere else, due to the ability of the late historic occupants to drill for water. In addition, the locations of historic resources such as fence or telegraph lines are not necessarily governed by topography. Architectural resources in the area are almost completely unknown, although the Texas Tech University Historical Engineering Sites Inventory noted the Dalhart Army Airfield as significant. Five properties dating from the period from 1890 to 1915 are listed in the Texas State Register of Historical Places, including three churches, a ranch headquarters, and a county jail, implying that other such properties may exist, particularly in Dalhart.



LEGEND 000 - 1975 TRAFFIC VOLUMES; DALHART, TEXAS

2180-A

SOURCE: TEXAS STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

SCHEMATIC: NOT TO SCALE

Figure 1.1.10-1. Existing traffic volumes in the vicinity of Dalhart.

Paleontology

The operating base at Dalhart is located 80 mi west of the important vertebrate fauna localities in Hemphill County. The Hemphillian fauna is found in the upper 150 ft of the Ogallala Formation and can be found in the Dalhart area. Pleistocene deposits on top of the Ogallala could also contain fossils.

1.2 NATURAL ENVIRONMENT

BIOLOGICAL RESOURCES (1.2.1)

The proposed Dalhart operating base is located approximately 8 mi southwest of Dalhart, Texas, in an area at present under intensive agriculture, with virtually no native vegetation. The wildlife species in the area are those common to the agricultural areas of the western Texas Panhandle. There is no aquatic habitat at the site. The only protected species likely to be present are the central plains milk snake and Texas horned lizard, and migrating individuals of bald eagle, American peregrine falcon, and whooping crane. No protected plants are reported from the area. There are no aquatic species present. There are no nearby potential wilderness areas or significant natural areas, although the site is adjacent to the Canadian River Valley, an extensive, topographically complex, biologically diverse area which harbors populations of protected plants and animals, both aquatic and terrestrial, which make the valley attractive for recreation, such as hunting, fishing, and off-road vehicle use.

The proposed operating base support community in the Dalhart area will occupy roughly 20 mi² of farmland and the adjacent valley of an intermittent stream tributary to the Canadian River, which is continuous with the Canadian Breaks. This valley is open rangeland, with habitat for shortgrass prairie plants, upland game, and larger mammals such as mule deer and pronghorn, both of which are found in the Canadian Breaks. The Canadian Breaks proper, with open rangeland and shortgrass prairie, areas of upland juniper breaks and riparian vegetation, are roughly 15 mi south of the operating base and represent the largest relatively undisturbed natural area in the Texas Panhandle. The number of playa lakes in the area is small.

The proposed operating base near Channing, Texas is on fairly productive agricultural land with few playa lakes, and essentially no native vegetation or aquatic habitat. The only important biological resource would be upland game species, such as bobwhite, pheasant, and cottontail, which are widespread in agricultural areas and tolerant of disturbance. Although not reported, the state protected Texas horned lizard and central plains milk snake may be present.

The site is adjacent to the Canadian Breaks, an important area for rare plants, upland game, larger mammals such as mule deer and pronghorn, and aquatic species. The Canadian Breaks is characterized by rangeland and shortgrass prairie, with upland breaks and riparian vegetation, and is the largest relatively undisturbed region in the Texas Panhandle.

SURFACE WATER (1.2.2)

Source

Rita Blanca Creek, which passes close to Dalhart, has its headwaters in New Mexico. New Mexico has free and unrestricted use of this water, and all water originating in New Mexico, provided that the amount of conservation storage for impounding the Canadian River Basin water does not exceed an aggregate 8.8×10^7 cubic ft.

Precipitation also provides water for surface runoff. Precipitation most often occurs as infrequent but intense thunderstorms that produce rapid runoff. In an average year, about 80 percent of the annual rainfall total is measured during the warm season - May through October.

The average annual net lake evaporation is between 120 and 140 inches.

Streams

The Mustang and Carrizo Creeks flow southeastward across the Texas/New Mexico border, joining slightly north of Dalhart, Texas to form Rita Blanca Creek.

Lakes and Reservoirs

Rita Blanca Creek has been dammed just south of Dalhart to form Lake Rita Blanca. The lake drains southward to join the Canadian River. Rita Blanca Lake is operated by Dallam and Hartley counties for recreational purposes. The reservoir has a capacity of 5.3×10^7 ft³ and a surface area of 525 acres.

Drainage

Drainage is to the south and east.

Current Use

The right of Texas to impound waters of the North Canadian River is limited to storage equal to tributaries located in Texas for municipal, domestic, and livestock watering needs and irrigation of lands for food and livestock feed at individual properties.

Quality

Rita Blanca Creek has excellent water quality, with dissolved solids concentrations commonly below 500 mg/l.

More detailed analyses are presented in the water resources technical report, ETR-12.

GROUNDWATER (1.2.3)

Location

The Dalhart operating base site lies south of Dalhart (in Dallam County) mostly in Hartley County and slightly in Moore County. All these areas fall into the Northern High Plains groundwater region in the northern Panhandle of the state.

The principal groundwater aquifer is the Ogallala formation consisting of a complex system of sand and gravel beds interbedded with silt, sand, and caliche. Total thickness of the system can extend to 900 ft with saturated thickness ranging from 200 to 500 ft (Texas WDB, 1977).

Source

The sole contribution to groundwater recharge is precipitation. Estimates of that recharge range from 0.05 to 0.5 in. per year (Bedinger and Sniegocki, 1976). This small amount of recharge is due to sparse rainfall along with high evaporation in the cemented caliche beds which lie under the topsoil and prevent downward percolation and the large depth to the groundwater table. About 80 percent of the annual precipitation occurs May through October usually in the form of thunderstorms which produce rapid runoff.

Current Use

Withdrawals are estimated at more than 15 times the annual natural recharge (Texas WDB, 1977). Current water use in the Texas High Plains is estimated at 1.2×10^6 AFY per year and a corresponding depletion rate of 0.9×10^6 AFY. The recoverable groundwater in storage is estimated to be 72×10^6 AF with a corresponding aquifer life of 77 years at the current rate of depletion (Texas WDB, 1977).

Texas courts follow the rule that a landowner has the right to take, for use or sale, all the water that can be captured beneath the owners land.

Trend

Current and historical pumpage has removed great volumes of water from storage resulting in large water-level declines and large reduction in well yields.

Quality

Generally, the groundwater contains less than 1,000 mg/l total dissolved solids and is acceptable for most types of uses (Texas WDB, 1977).

More detailed analyses are presented in the water resources technical report, ETR-12.

SOILS/SLOPE (1.2.4)

The soils of the potential OB site southwest of Dalhart formed on nearly level to gently sloping and undulating upland plains. Slopes are generally 0 to 3 percent except on the more undulating and hummocky areas where slopes range from 3 to 8 percent. The soils of the Dalhart OB site are deep, noncalcareous to calcareous with surface textures ranging from fine sandy loams to loamy fine sands and fine sands (U.S. D.A. Soil Conservation Service, December 1977). Runoff is generally slow to medium. The soils of this area present a severe hazard of wind erosion.

Several soil series are present at the potential Dalhart OB site. The Dallam series predominates and consists of soils with brown loamy fine sand and fine sandy

loam surfaces underlain by horizons of sandy clay loam and clay loam to a depth of 95 inches (240 cm). The profile is calcareous below 35 inches (90 cm) with calcium carbonate reaching up to 30 percent between 50 to 60 inches (125 to 165 cm). Permeability is moderate, the hazard of water erosion is slight, and the available water capacity is high. Soils of the Dallam series are generally well suited to crops and may be dry farmed or irrigated.

Soils of the Vingo series are found associated with soils of the Dallam series in areas of undulating and hummocky topography. In such places, slopes range from 3 to 8 percent with alternating ridges rising about 10 feet (3 m) above lower areas. Vingo soils occupy the level ridges while the lower areas are occupied by Dallam loamy fine sand. The Vingo soils are noncalcareous throughout and have brown loamy fine sand surfaces underlain by horizons of fine sandy loam and sandy clay loam to 85 inches (215 cm). Permeability is moderately rapid and the available water capacity is medium. The associated Dallam soils are loamy fine sands with characteristics as discussed in the preceding paragraph. The Dallam-Vingo Series Association is best suited to range.

Small areas of other soil series are found at the potential Dalhart OB site. Some of these include the Perico fine sandy loams and loamy fine sands, the Rickmore fine sandy loams and loamy fine sands, the Spurlock fine sandy loams and the Valentine fine sand, duned soil.

Seismicity

The Dalhart area is in a zone of low seismic risk. Seismic hazards result only from large earthquakes on distant faults, the most likely being along the Rio Grande lineament.

AIR QUALITY (1.2.5)

A point source emission inventory in Texas was available on a county basis for 1971, the most recent year. Emissions data for Dallam County, which includes the Dalhart OB site, is given in Table 1.2.5-1. Point source particulate emissions were listed as 710 tons per year. No point sources of gaseous emissions were listed in 1971.

Fugitive dust problems become more pronounced in the Texas/New Mexico region than in the Nevada/Utah region particularly in the spring. Strong spring surface winds reduce visibilities in blowing dust or blowing sand as much as 3 percent of the time at Dalhart. Annual rainfall for the Texas/New Mexico region is nearly twice the average of the Nevada/Utah region with a maximum occurrence in the summer. This precipitation is generally in the form of afternoon thundershowers occurring every three days on the average which help to limit natural dust emissions that time of the year.

Table 1.2.5-1. Baseline
particulate
emission
rates in
Texas.

COUNTY	PARTICULATE (TONS/YR)
Bailey	1,648
Castro	2,161
Cochran	114
Dallam	710
Deaf Smith	1,729
Hale	2,031
Hartley	358
Hockley	988
Lamb	1,908
Lubbock	1,602
Moore	2,434
Oldham	1,296
Parmer	2,473
Potter	9,838
Randall	170
Sherman	626
Swisher	2,306

. 3305

Source: 1971 Point Source
Inventory for State
of Texas.

2.0 ENVIRONMENTAL CONSEQUENCES FOR THE OPERATING BASE VICINITY

2.1 HUMAN ENVIRONMENT

EFFECTS ON EMPLOYMENT AND LABOR FORCE (2.1.1)

Dalhart would be the location of the second operating base under Alternative 7, full deployment in Texas/New Mexico. Base-associated employment and construction employment of DDA facilities under this alternative as well as spilt deployment in the county, would significantly change the size and structure of small agriculturally-dominated economies in Dallam and Hartley counties.

Direct, Indirect and Total M-X-Related Employment

Principal employment effects result from the project's demand for construction and operations labor. Table 2.1.1-1 and 2.1.1-2 present direct, indirect and total labor requirements for the base and DDA construction. Construction of DDA facilities is projected to begin in 1985, run five years in Dallam, and three in Hartley County, and peak at 4,900 jobs in Dallam in 1988, and 2,200 jobs in Hartley County in 1986. Base construction is scheduled concurrently but effects by place of employment are projected only for Hartley County, the actual location of the second operating base.

Compared to a 1978 employment in contract construction, the peak construction figure of 4,900 in Dallam County would be 49 times as large, while peak employment of 3,500 jobs in 1986 in Hartley would occur in a county with virtually no construction industry in 1976. Employment demand of this scale would create significant short run stress in each county's building trades industry, inducing skilled labor shortages, wage inflation and large scale in-migration of workers.

Table 2.1.1-2 indicates that operation of the base would begin in 1986 in Hartley County, with initial staffing of 1,400 persons, and would be completed by 1990. Long-run direct employment in Hartley County attributable to base employment would equal 5,700 persons, and of this figure, 85 percent would be military personnel. No long-run direct employment is projected in Dallam County.

Indirect employment would begin in 1984 in both counties, peak at 2,300 jobs in 1988 in Hartley County, and at 2,200 jobs in Dallam County one year earlier. Indirect employment would decline thereafter until reaching a lower equilibrium level of 400 jobs in Hartley, and 300 jobs in Dallam County. In both counties, the principal source of indirect employment is the respending of project payrolls earned by direct employees. There would also be local procurement of goods and services from area suppliers, who in turn, would tend to expand their employment levels to meet the increased demand. Some project-related investments by local, state and federal governments and private business would also create additional short-run indirect employment.

Table 2.1.1-1 and 2.1.1-2 indicate that peak employment by place of work could reach 8,400 jobs in Dallam County in 1988, and 8,500 jobs in Hartley County one year earlier. These peak figures are 275 percent of projected total employment in Dallam County in 1988, and 550 percent of the total employment forecast for Hartley County in 1987. However, more important measures of local effects would

Table 2.1.1-1.

M-X RELATED SYSTEM EMPLOYMENT BY PLACE OF EMPLOYMENT IN DALAM

ALTERNATIVE 7 FULL DEPLOYMENT - TEXAS/NEW MEXICO (LI)
 BASE I AT CLOVIS, NM (CURRY CO.)
 BASE II AT DALHART, TX (HARTLEY CO.)

TYPE OF EMPLOYMENT	NUMBER OF JOBS												
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
TECHNICAL FACILITIES													
CONSTRUCTION	0	0	0	50	0	3200	4850	1750	0	0	0	0	0
ASSEMBLY + CONSTRUC	0	0	0	0	0	500	1150	1300	50	0	0	0	0
BASE													
CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0	0
ASSEMBLY AND CHECKOUT	0	0	0	0	0	0	0	0	0	0	0	0	0
OPERATIONS													
OFFICERS	0	0	0	0	0	0	0	0	0	0	0	0	0
ENLISTED PERSONNEL	0	0	0	0	0	0	0	0	0	0	0	0	0
CIVILIANS	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL DIRECT	0	0	0	50	850	3700	6000	3050	50	0	0	0	0
INDIRECT	0	1	232	710	1439	2248	2441	1877	1110	456	313	308	308
TOTAL	0	1	232	760	2289	5948	8441	4927	1160	456	313	308	308

SOURCE: MOR SCIENCES, 31 OCT 80

Table 2.1.1-2.

M-X RELATED SYSTEM EMPLOYMENT BY PLACE OF EMPLOYMENT, IN HARTLEY

ALTERNATIVE 7 FULL DEPLOYMENT - TEXAS/NEW MEXICO (LI)
 BASE I AT CLOVIS, NM (CURRY CO.)
 BASE II AT DALHART, TX (HARTLEY CO.)

TYPE OF EMPLOYMENT	NUMBER OF JOBS												
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
TECHNICAL FACILITIES													
CONSTRUCTION	0	0	0	1200	2150	1050	0	0	0	0	0	0	0
ASSEMBLY + CONSTRUC	0	0	0	100	450	450	100	0	0	0	0	0	0
BASE													
CONSTRUCTION	0	0	0	200	1350	2050	1450	750	0	0	0	0	0
ASSEMBLY AND CHECKOUT	0	0	0	0	0	0	0	0	0	0	0	0	0
OPERATIONS													
OFFICERS	0	0	0	0	100	200	350	450	450	450	450	450	450
ENLISTED PERSONNEL	0	0	0	0	1100	2200	3250	4400	4400	4400	4400	4400	4400
CIVILIANS	0	0	0	0	200	400	650	850	850	850	850	850	850
TOTAL DIRECT	0	0	0	1500	5350	6350	5800	6450	5700	5700	5700	5700	5700
INDIRECT	0	1	205	686	1485	2211	2254	1799	1134	557	426	417	417
TOTAL	0	1	205	2186	6835	8561	8054	8249	6834	6257	6126	6117	6117

SOURCE: MOR SCIENCES, 31-OCT-80

be employment change by place of residence, i.e., adjusting employment for cross-county commuting. In the case of Dallam County, the peak figure of 8,400 workers given above adjusts upward to 9,000 jobs, indicating many employed on DDA construction in Hartley County, would live in Dallam. Peak employment in Hartley County would adjust downward to 8,300 jobs to correct for employees living outside the county. Total employment by place of work stabilizes by 1992 at 6,100 jobs in Hartley County, about 430 percent of baseline employment for that year. Dallam County employment by place of work would stabilize at a much lower figure, 300 jobs by 1992, about 12 percent of projected baseline employment in that county in 1992.

Long-run employment by place of residence would equal 4,800 jobs in Hartley County by 1992, and 800 jobs in Dallam County. In both counties, boom growth conditions would result in the short run, and in Hartley County over the long run as well. Labor shortages, wage-price inflation, and a very large in-migration of additional workers into the counties would be expected. Rapid expansion of the service and trade sectors in Hartley County, currently an agriculturally-based economy would also result.

Labor markets could become very tight, particularly over the buildup phases in both counties. This problem could become acute for the construction trades. In such relatively small labor markets, significant in-migration of construction and for Hartley County, operations personnel would be required. Some indirectly employed workers would also in-migrate from outside the counties. Tables 2.1.1-3 and 2.1.1-4 presents labor in-migration estimates for Dallam and Hartley Counties under Alternative 7. These in-migration figures are very important since they form the basis for almost all population growth (excluding military), which in turn, drives impacts upon local infrastructure, including community finance, a key determinant of project impact analyses. Total civilian M-X-related employment represents direct and indirect labor demand, adjusted to employment by place of residence. Taking Dallam County as an example, this figure peaks at 6,400 persons in 1988. In the same year, Table 2.1.1-3 indicates Dallam County's available labor force is forecast to equal about 10 persons. This figure includes an estimate of the projected unemployed labor force less an estimate of those persons who would likely remain unemployed even in extremely tight labor markets. The "net civilian labor force impact" row compares the expected available labor pool in Dallam County with M-X demand for civilian labor. It represents cumulative civilian labor in-migration into the county, which in 1988 would equal about 6,600 workers, that is, up to and including 1988, a total of 6,600 civilian workers who would become new residents in the county. For both counties, Table 2.1.1-3 and 2.1.1-4 indicate rapid out-migration after 1987 in Hartley, and 1988 in the Dallam County as job opportunities in the counties diminish; "net civilian labor force impacts" decline. For Dallam County this figure stabilizes at 600 persons by 1992, and this is the estimated total civilian workers in-migration into Dallam County under Alternative 7. A comparable figure for Hartley County equals 1,400 persons. Following peak in-migration, labor market stress would decline somewhat, unemployment rates could increase slightly, and the rapid, induced growth in construction trades wage levels would begin to decline. Particularly in Hartley County, occupational transition would begin out of such short run boom growth industries, and into services and trade industries, for long base-associated industrial expansion.

Table 2.1.1-3. TOTAL CIVILIAN M-X RELATED EMPLOYMENT, AVAILABLE RESIDENT LABOR FORCE, AND NET CIVILIAN LABOR FORCE IMPACT BY PLACE OF RESIDENCE FOR DALLAS

ALTERNATIVE 7 FULL DEPLOYMENT - TEXAS/NEW MEXICO (L) BASE I AT CLOVIS, NM (CURRY CO) BASE II AT DALHART, TX (HARTLEY CO)													
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
TOTAL CIVILIAN M-X-RELATED EMPLOYMENT	0	1	232	1115	2714	3008	6389	4424	1457	753	610	605	605
AVAILABLE RESIDENT LABOR FORCE	12	12	12	12	12	12	12	13	13	13	13	13	13
NET CIVILIAN LABOR FORCE IMPACT	0	0	226	1139	2807	3181	6604	4506	1463	759	615	610	610
SOURCE	HQR SCIENCES, 31-OCT-80												

Table 2.1.1-4. TOTAL CIVILIAN M-X RELATED EMPLOYMENT, AVAILABLE RESIDENT LABOR FORCE, AND NET CIVILIAN LABOR FORCE IMPACT BY PLACE OF RESIDENCE FOR HARTLEY

ALTERNATIVE 7 FULL DEPLOYMENT - TEXAS/NEW MEXICO (L) BASE I AT CLOVIS, NM (CURRY CO) BASE II AT DALHART, TX (HARTLEY CO)													
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
TOTAL CIVILIAN M-X-RELATED EMPLOYMENT	0	1	203	1496	3923	4991	4276	2821	1431	854	723	714	714
AVAILABLE RESIDENT LABOR FORCE	0	0	0	0	0	0	0	0	0	0	0	0	0
NET CIVILIAN LABOR FORCE IMPACT	0	1	203	1556	4104	5309	4469	2950	1498	1412	1412	1412	1412
SOURCE	HQR SCIENCES, 31-OCT-80												

EFFECTS ON INCOME AND EARNINGS (2.1.2)

Under Alternative 7, Dalhart (Dallam and Hartley Counties, Texas) would be the site of the second operating base. In addition cluster facilities are located in both Dallam and Hartley Counties under both full and split deployment option but in much smaller numbers with split deployment. Both counties would share in economic expansion induced by DDA and operating base construction. But over the long run, virtually all earnings growth would be attributed to Hartley County, a result "of employment on the base". In the short run, the net increase in earnings would peak at \$182 million in Hartley in 1987, and at \$223 million in Dallam County in 1988 as Tables 2.1.2-1 and 2.1.2-2 indicate respectively. In both cases, growth over 1978 county total earnings would be great; in Hartley, peak earnings would be about 2,000 percent of 1978 earnings of \$9.1 million (1980 dollars), while in Dallam, peak earnings would equal about 490 percent of 1978 earnings of \$45.6 million (1980 dollars). In agricultural economies, boom growth from earnings of this magnitude would result. Over the long run, earnings by place of work would decline in Dallam County to a projected level of \$4 million in 1993, due entirely to indirect employment. Hartley County, the operating base location, would experience long run annual earnings equal to \$84 million, over 9 times 1978 total earnings. Long run project-related employment in Hartley County would induce significant economic stress and could completely change the size and nature of the county's economic base toward trade and service industries.

Under the split deployment alternative, although no base is located at Dalhart, short-run effects occur in both Dallam and Hartley Counties because of DDA construction activity. Earnings in Dallam County attributable to M-X peak in 1989 at \$66 million, a figure which is about one-third of peak earnings in DDA construction in that year under Alternative 7. In Hartley County, earnings peak at \$73 million in 1987, with almost 95 percent of peak earnings from DDA construction under full deployment. However, indirect earnings are minor compared to effects under full deployment. By 1991 in Dallam, and 1992 in Hartley County, earnings impacts have declined to zero.

EFFECTS ON PUBLIC FINANCE (2.1.3)

This section presents the aggregate expenditure, revenue, and net impact estimates for all local governments in the Dallam and Hartley County areas. Peak year and long-term capital expenditure requirements also are presented. The effects discussed reflect aggregate estimates and cannot be interpreted as estimates associated with any specific jurisdiction. However, impacts specific to the local school district constitute a major portion of the aggregate effects and are discussed separately.

The net fiscal effects in the two-county Dalhart area of analysis are greatest for Dallam County under Alternative 7. Peak-year (1987) deficits of approximately \$800,000 could be anticipated (Table 2.1.3-1), representing approximately 6.9 percent of the total expenditure levels anticipated. Under Alternative 8, where only DDA facilities are proposed for the area, substantially lower deficits of \$300,000 are anticipated. Under Alternative 8, where only DDA facilities are proposed for the area, substantially lower deficits of \$300,000 are anticipated. Hartley County would experience impacts similar to those for Dallam County. Maximum deficits of \$700,000 in the peak year (1986) for Alternative 7 and \$300,000 in 1987 for Alternative 8 are anticipated (Table 2.1.3-2). These deficits could result in serious service level degradation, particularly in the early years of the project (1984-1987)

Table 2.1.2-1.

M-X RELATED EARNINGS, IN MILLIONS OF FY 1980 DOLLARS, IN DALLAS
ALTERNATIVE 7 FULL DEPLOYMENT - TEXAS/NEW MEXICO (L)
BASE I AT CLOVIS, NM (CURRY CO.)
BASE II AT DALLAM, TX (HARTLEY CO.)

SOURCE OF EARNINGS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
CLUSTER FACILITIES CONSTRUCTION, ASSEMBLY, AND CHECKOUT	0.0	0.0	0.0	1.7	28.6	120.0	171.7	91.3	1.3	0.0	0.0	0.0	0.0
BASE CONSTRUCTION, ASSEMBLY, AND CHECKOUT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OPERATIONS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
INDIRECT	0.0	0.0	3.0	7.2	10.7	29.2	31.7	24.4	14.4	5.9	4.1	4.0	4.0
TOTAL	0.0	0.0	3.0	10.9	47.3	149.2	223.4	115.7	15.7	5.9	4.1	4.0	4.0
SOURCE: HDR SCIENCES, 3-NOV-80													

Table 2.1.2-2.

M-X RELATED EARNINGS, IN MILLIONS OF FY 1980 DOLLARS, IN HARTLEY
ALTERNATIVE 7 FULL DEPLOYMENT - TEXAS/NEW MEXICO (L)
BASE I AT CLOVIS, NM (CURRY CO.)
BASE II AT DALLAM, TX (HARTLEY CO.)

SOURCE OF EARNINGS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
CLUSTER FACILITIES CONSTRUCTION, ASSEMBLY, AND CHECKOUT	0.0	0.0	0.0	42.0	181.5	46.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0
BASE CONSTRUCTION, ASSEMBLY, AND CHECKOUT	0.0	0.0	0.0	6.7	45.4	48.9	48.7	25.2	0.0	0.0	0.0	0.0	0.0
OPERATIONS	0.0	0.0	0.0	0.0	19.1	30.1	58.9	78.5	78.5	70.5	78.5	78.5	78.5
INDIRECT	0.0	0.0	3.7	8.9	19.3	20.7	29.3	23.4	14.7	7.2	5.5	5.4	5.4
TOTAL	0.0	0.0	3.7	60.5	167.2	182.3	139.4	127.1	93.3	85.6	84.1	83.9	83.9
SOURCE: HDR SCIENCES, 3-NOV-80													

Table 2.1.3-1.

LOCAL GOVERNMENT REVENUES, EXPENDITURES, AND NET IMPACTS (THOUSANDS FY 1980 \$) (1) BASELINE: LOW COUNTY: ULLAH													
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
ALTERNATIVE 7													
REVENUES													
WITHOUT ME	4612.	4666.	4720.	4780.	4828.	4881.	4935.	4989.	5050.	5124.	5205.	5285.	5366.
WITH ME	4612.	4666.	4885.	5780.	7621.	10660.	11693.	10888.	7809.	6759.	6415.	6422.	6504.
DIFFERENCE	0.	0.	163.	1000.	2744.	5194.	5144.	5096.	2159.	1535.	1216.	1171.	1174.
PCT. DIFF.	0.00	0.00	3.50	20.92	57.87	106.04	104.72	102.21	59.84	31.41	23.26	21.51	21.14
EXPENDITURES													
WITHOUT ME	4811.	4867.	4933.	4986.	5035.	5092.	5148.	5204.	5267.	5345.	5429.	5513.	5597.
WITH ME	4811.	4867.	5212.	6378.	8929.	11031.	12182.	9506.	7372.	6610.	6317.	6590.	6674.
DIFFERENCE	0.	0.	289.	1391.	3493.	5934.	7034.	4602.	2104.	1265.	1083.	1017.	1077.
PCT. DIFF.	0.00	0.00	5.87	27.90	69.37	116.65	136.63	84.58	39.95	23.67	16.95	19.53	19.23
NET INDUCED													
NET IMPACT	0.	0.	-134.	-391.	-700.	-761.	-286.	598.	635.	370.	128.	60.	94.
ALTERNATIVE 8B													
REVENUES													
WITHOUT ME	4612.	4666.	4720.	4780.	4828.	4881.	4935.	4989.	5050.	5124.	5205.	5285.	5366.
WITH ME	4612.	4666.	4720.	4780.	4948.	4991.	4935.	4989.	5050.	5124.	5205.	5285.	5366.
DIFFERENCE	0.	0.	0.	0.	116.	786.	5682.	6515.	5370.	5179.	5205.	5285.	5366.
PCT. DIFF.	0.00	0.00	0.00	0.00	2.45	16.11	39.43	30.39	6.34	0.10	0.00	0.00	0.00
EXPENDITURES													
WITHOUT ME	4811.	4867.	4933.	4986.	5035.	5092.	5148.	5204.	5267.	5345.	5429.	5513.	5597.
WITH ME	4811.	4867.	4923.	4986.	5035.	5092.	5148.	5204.	5267.	5345.	5429.	5513.	5597.
DIFFERENCE	0.	0.	60.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
PCT. DIFF.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NET INDUCED													
NET IMPACT	0.	0.	0.	0.	-48.	-250.	-780.	-284.	382.	5.	0.	0.	0.

SOURCE: MDH SCIENCES
 (1) ESTIMATES REFLECT AGGREGATE REVENUES AND EXPENDITURES FOR ALL LOCAL GOVERNMENTAL UNITS (COUNTIES, CITIES, SCHOOL DISTRICTS, SPECIAL DISTRICTS) WITHIN THE COUNTY.

30-OCT-88

unless substantial outside aid and/or mitigative measures are available. No significant adverse effects would be anticipated in the long term for either Hartley or Dallam counties under any of the alternatives.

Effects on the education system in the Hartley and Dallam counties follow similar patterns. Maximum effects for both counties would be anticipated under Alternative 7. Deficits are projected for the early years of the project (1984-1987) (Table 2.1.3-3 and Table 2.1.3-4). These deficits could adversely affect the provision of education services in the areas unless immediate aid were made available to the local schools in the early years of the project. Under Alternative 8, impacts throughout the M-X deployment time frame (1982-1994) would be significantly lower than under the full deployment alternative.

Capital expenditure requirements projections for full deployment, Alternative 7, and split deployment Alternative 8 are present for Dallam and Hartley counties in Table 2.1.3-5 and 2.1.3-6. Impacts for both counties are greatest under Alternative 7 where a second operating base is located near Dalhart.

Total long-term capital expenditure requirements under Alternative 7 for the Hartley County area would amount to \$20.1 million. Capital outlays for school facility development would account for 72 percent of those expenditures. Under the split deployment alternative, no long-term capital expenditures would be required. Capital outlay requirements for the Dallam County area in the long-term are approximately \$4.9 million under Alternative 7. No long-term requirements are estimated under Alternative 8. Peak-year capital expenditure requirements for the Hartley County area would range from \$7.5 million under Alternative 8 to \$26.5 million for Alternative 7. Peak year requirements for the Dallam County area are \$26.5 million under Alternative 7 and \$7.5 million under Alternative 8.

The level of capital expenditure requirements estimated for the Hartley and Dallam Counties when compared to the reserve bonding capacities of the various jurisdictions indicates the inability of these jurisdictions to finance projects necessary to support infrastructure growth. Federal assistance would be required to maintain current service standard levels. While peak-year cost would be substantially higher than long-term annual outlays, the use of temporary facilities and/or other mitigative strategies could reduce these capital expenditures substantially.

EFFECTS ON POPULATION (2.1.4)

The population effects of a second operating base near Dalhart, Texas, which is proposed only in Alternative 7, are projected to occur primarily within Hartley and Dallam counties, although sizable spillover effects would be experienced in Moore County and in the metropolitan Amarillo area. The M-X-related in-migrant population is projected to reach a maximum during the construction "boom" of approximately 14,400 in Hartley and 12,600 persons in Dallam County in 1988, representing increases of about 348 percent and 172 percent, respectively, above their projected baseline populations in that year (Tables 2.1.4-1 and 2.1.4-2). In the long-term, out-migration of construction related population would reduce the totals to permanent levels of approximately 11,200 in Hartley County, the site of the base, and 1,600 in Dallam County. The M-X-related permanent population growth would represent increases of about 243 percent and 20 percent, respectively, over the projected baseline populations in Hartley and Dallam.

Table 2.1.3-3.

SCHOOL DISTRICT REVENUES, EXPENDITURES, AND NET IMPACTS (THOUSANDS FY 1980 \$) (1) BENCHMARK LOW COUNTY, HANTLEY

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
ALTERNATIVE 7													
REVENUES													
WITHOUT RE	1650.	1687.	1723.	1759.	1795.	1831.	1867.	1904.	1940.	1976.	2012.	2048.	2085.
WITH RE	1650.	1687.	1814.	2649.	5570.	8106.	9503.	9904.	8716.	8240.	8243.	8279.	8315.
DIFFERENCE	0.	1.	91.	890.	3775.	6274.	7638.	8801.	9777.	6244.	6231.	6231.	6231.
PCT. DIFF.	0.00	0.04	5.31	50.59	210.31	342.61	408.88	428.28	349.34	317.03	305.63	304.18	298.90
EXPENDITURES													
WITHOUT RE	1677.	1714.	1750.	1787.	1824.	1861.	1897.	1934.	1971.	2008.	2045.	2081.	2118.
WITH RE	1677.	1715.	1704.	2959.	5961.	8000.	8907.	9002.	7887.	7461.	7877.	7916.	7951.
DIFFERENCE	0.	2.	854.	1172.	4137.	6139.	7010.	7682.	5096.	3803.	2893.	2833.	2931.
PCT. DIFF.	0.00	0.10	8.78	65.55	226.79	332.00	365.82	385.82	259.16	270.52	285.26	289.26	275.14
AS INTROD.													
NET IMPACT	0.	-1.	-62.	-202.	-381.	95.	628.	932.	880.	412.	169.	168.	168.
ALTERNATIVE 80													
REVENUES													
WITHOUT RE	1650.	1687.	1723.	1759.	1795.	1831.	1867.	1904.	1940.	1976.	2012.	2048.	2085.
WITH RE	1650.	1687.	1723.	1760.	1946.	2755.	3212.	3596.	2637.	1977.	2012.	2048.	2085.
DIFFERENCE	0.	0.	0.	1.	151.	924.	1345.	892.	177.	1.	0.	0.	0.
PCT. DIFF.	0.00	0.00	0.00	0.04	8.38	50.46	72.02	36.36	6.04	0.05	0.00	0.00	0.00
EXPENDITURES													
WITHOUT RE	1677.	1714.	1750.	1787.	1824.	1861.	1897.	1934.	1971.	2008.	2045.	2081.	2118.
WITH RE	1677.	1714.	1750.	1789.	2029.	3022.	3176.	2261.	1973.	2808.	2845.	2881.	2118.
DIFFERENCE	0.	0.	0.	2.	205.	1161.	1278.	317.	2.	0.	0.	0.	0.
PCT. DIFF.	0.00	0.00	0.00	0.10	11.24	62.39	67.05	16.90	0.00	0.00	0.00	0.00	0.00
AS INTROD.													
NET IMPACT	0.	0.	0.	-1.	-54.	-237.	73.	385.	115.	1.	0.	0.	0.

SOURCE: HNTB SERVICES
(1) ESTIMATES REFLECT AGGREGATE REVENUES AND EXPENDITURES BY ALL SCHOOL DISTRICTS WITHIN THE COUNTY.

30-OCT-89

Table 2.1.3-4.

SCHOOL DISTRICT REVENUES, EXPENDITURES, AND NET IMPACTS (THOUSANDS FF 1985 \$) (1) BASELINE) LOW COUNTY, ILLINOIS

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
ALTERNATIVE 7													
REVENUES													
WITHIN ME	3097.	3134.	3170.	3210.	3242.	3278.	3314.	3351.	3391.	3431.	3475.	3520.	3564.
DIFFERENCE	0.	36.	36.	40.	42.	36.	36.	36.	40.	40.	44.	44.	44.
PCT. DIFF.	0.00	1.16	1.16	1.25	1.29	1.10	1.10	1.06	1.18	1.17	1.26	1.25	1.25
EXPENDITURES													
WITHIN ME	3147.	3184.	3221.	3262.	3294.	3331.	3368.	3404.	3446.	3486.	3531.	3577.	3622.
DIFFERENCE	0.	0.	51.	52.	52.	53.	54.	53.	55.	55.	56.	57.	58.
PCT. DIFF.	0.00	0.00	1.61	1.62	1.60	1.57	1.58	1.53	1.59	1.59	1.61	1.62	1.63
NET IMPACT	0.	0.	-51.	-52.	-52.	-53.	-54.	-53.	-55.	-55.	-56.	-57.	-58.
ALTERNATIVE 8R													
REVENUES													
WITHIN ME	3097.	3134.	3170.	3210.	3242.	3278.	3314.	3351.	3391.	3431.	3475.	3520.	3564.
DIFFERENCE	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
PCT. DIFF.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EXPENDITURES													
WITHIN ME	3147.	3184.	3221.	3262.	3294.	3331.	3368.	3404.	3446.	3486.	3531.	3577.	3622.
DIFFERENCE	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
PCT. DIFF.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NET IMPACT	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

SOURCE: LOW COUNTIES
(1) ESTIMATES EFFECT AGGREGATE REVENUES AND EXPENDITURES BY ALL SCHOOL DISTRICTS WITHIN THE COUNTY.

10-OCT-89

Table 2.1.3-5.

MAX. POLYMER UNITARY EXPENDITURE REQUIREMENTS (THOUSANDS BY 1980 \$) BASELINES A-14
COUNTRY: ITALY

SERVICE	UNIT TERM (1980)	ANNUAL INVESTMENT REQUIRED (1)	PER YEAR
NUTRITION 7			
GENERAL IMPLICATION RNDM ITEMS (2)	1422.7	1422.7	9414.6
RESEARCH RNDM ITEMS (3)	1502.3	701.2	5256.3
SCHOLAR	1702.3	3702.3	11346.9
TOTAL	4626.4	4225.7	36521.7
NUTRITION 80			
GENERAL IMPLICATION RNDM ITEMS (2)	0.0	0.0	2101.3
RESEARCH RNDM ITEMS (3)	0.0	0.0	182.5
SCHOLAR	0.0	0.0	3778.0
TOTAL	0.0	0.0	7531.8

(1) EXCLUDE ANNUAL INVESTMENT REQUIRED.
(2) GENERAL IMPLICATION RNDM ITEMS INCLUDE POLICE, FIRE, GOVERNMENT, HEALTH SERVICE, LIBRARY,
(3) RESEARCH RNDM ITEMS INCLUDE WATER AND WASTEWATER FACILITY EXPENDITURES.
SOURCE: NDA SCIENCES, 10-SEP-80

Table 2.1.3-6.

4-1 RELATED CAPITAL EXPENDITURE REQUIREMENTS (THOUSANDS FY 1980 \$) BASELINE: L34
COUNTY: WARTLEY

SERVICE	LONG TERM (1994)		ANNUAL INVESTMENT REQUIRED (1)		PEAK YEAR
ALTERNATIVE 7					
GENERAL OBLIGATION BOND ITEMS (2)	3175.9		1258.8		1987.1
REVENUE BOND ITEMS (3)	2171.2		751.1		1987.7
SCHOOLS	14557.4		3519.4		17486.7
TOTAL	20106.4		5489.0		30574.9
ALTERNATIVE 88					
GENERAL OBLIGATION BOND ITEMS (2)	0.0		0.0		2012.9
REVENUE BOND ITEMS (3)	0.0		0.0		1146.9
SCHOOLS	0.0		0.0		3175.2
TOTAL	0.0		0.0		6334.1

(1) MAXIMUM ANNUAL INVESTMENT REQUIRED.

(2) GENERAL OBLIGATION BOND ITEMS INCLUDE POLICE, FIRE, GOVERNMENT, HEALTH SERVICE, LIBRARY, AND STREET EXPENDITURES.

(3) REVENUE BOND ITEMS INCLUDE WATER AND WASTEWATER FACILITY EXPENDITURES.

SOURCE: HWY SCIENCES, 30-OCT-80

Table 2.1.4-1.

PROJECTED BASELINE POPULATION AND CUMULATIVE M-X RELATED IN-MIGRATION BY ALTERNATIVE, IN HARTLEY ASSUMING TREND BASELINE

ALTERNATIVE / POPULATION	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
BASELINE POPULATION	3650	3730	3810	3890	3970	4050	4130	4210	4290	4370	4450	4530	4610
ALTERNATIVE 7													
M-X IN-MIGRATION	0	3	435	3127	9922	13011	14362	14060	11382	11100	11100	11199	11199
TOTAL POPULATION	3650	3733	4245	7017	13932	17861	18492	18270	15672	15560	15660	15729	15809
PERCENT DIFFERENCE FROM BASELINE	0.0	0.1	11.4	80.4	240.9	341.0	307.7	336.0	265.3	256.3	251.7	247.2	242.9
ALTERNATIVE 8B													
M-X IN-MIGRATION	0	0	0	3	510	2050	3337	936	4	0	0	0	0
TOTAL POPULATION	3650	3730	3810	3893	4400	7100	7667	5146	4294	4370	4450	4530	4610
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.1	12.8	75.3	80.8	22.2	0.1	0.0	0.0	0.0	0.0

SOURCE: HDR SCIENCES, 23-OCT-80

Table 2.1.4-2.

PROJECTED BASELINE POPULATION AND CUMULATIVE M-X RELATED IN-MIGRATION BY ALTERNATIVE, IN DALIAN ASSUMING TREND BASELINE

ALTERNATIVE / POPULATION	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
BASELINE POPULATION	6850	6930	7010	7100	7170	7250	7330	7410	7500	7610	7730	7850	7970
ALTERNATIVE 7													
M-X IN-MIGRATION	0	0	481	2012	5173	9924	12525	9286	3371	1929	1674	1613	1613
TOTAL POPULATION	6850	6930	7491	9112	12343	17174	19955	15694	10871	9539	9154	9463	9583
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	6.9	28.3	72.1	136.9	172.2	111.9	44.9	25.3	21.0	20.5	20.2
ALTERNATIVE 8B													
M-X IN-MIGRATION	0	0	0	0	194	1257	3690	2681	73	0	0	0	0
TOTAL POPULATION	6850	6930	7010	7100	7364	8567	10820	10091	7573	7610	7730	7850	7970
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.0	2.7	17.3	47.6	36.2	1.0	0.0	0.0	0.0	0.0

SOURCE: HDR SCIENCES, 23-OCT-80

The construction related population projected to be present in the two counties would total approximately 4,100 in Hartley and 8,500 in Dallam in the peak year. About 28 percent of the project induced population present in Hartley County during the peak year would be construction related, while 54 percent would be military personnel and their dependents and 18 percent would be civilian operation and indirect population. The corresponding proportions for Dallam County are 67, 4 and 24 percent respectively for construction, military, and other civilian population categories (Tables 2.1.4-3 and 2.1.4-4).

The construction related population, a large share of whom would be workers present without families, would likely have higher incomes, a slightly larger family household size, and younger age distribution than the general population (Mountain West Research, Inc., 1975), while military related population would contain a large share of single persons and have a younger age structure and lower average income (at least for enlisted personnel) than the general population. The civilian operations and indirect population generated by project related expansion of local economic activity would likely approximate the characteristics of the population of the western United States. The construction related and indirect populations are projected to be temporarily present in Hartley County, while a very small indirect population would remain in Dallam County in the long term. The permanent in-migrant population would be comprised almost exclusively of military and civilian operations workers and their families. In Hartley County about 31 percent of the in-migrants present in the peak year (4,500 persons) would be civilian labor force participants and another 28 percent are projected to be school-age population. The equivalent proportions for Dallam County are 52 percent and 20 percent. In the long-term, approximately 13 percent of the 11,200 permanent in-migrants to Hartley would be civilian labor force participants and another 29 percent are projected to be school-age population. Of Dallam County's 1,600 permanent in-migrants, about 38 percent would be civilian labor force participants and 24 percent would be school-age population.

The projected M-X-related in-migrant population at the county level has been disaggregated to three spatial categories of residence: construction camps, the operating base, and local communities (Tables 2.1.4-5 and 2.1.4-6). In Hartley County during 1988, the peak year, slightly more than one-half of the in-migrants present (7,400 persons) would require accommodations in communities, with most of the remainder onbase. Almost three-quarters of the in-migrants to Dallam in the peak year would have to be absorbed in communities with the remainder housed in temporary construction camps near DDA facility sites. In the long-term all of the project related in-migrant population in Dallam County would be in communities, while only 25 percent require accommodation in communities in Hartley, the remainder being onbase. The major share of the community population growth generated within the two-county area by the proposed base would likely occur in the vicinity of Dalhart, which is located partially in each county. In addition, the communities of Hartley and Channing in Hartley County could receive lesser effects.

As many as 1,600 permanent in-migrants related to the project are also projected to be present in adjacent Moore County in the vicinity of Dumas. A larger number, about 2,800 persons, are projected to be in the metropolitan Amarillo area in Potter and Randall Counties.

Table 2.1.4-3.

PROJECTED CUMULATIVE POPULATION IN MIGRATION BY PROJECT-RELATED EMPLOYMENT CATEGORY, • BY ALTERNATIVE, IN HAITI (LY ASSUMING TREND BASELINE)

ALTERNATIVE / CATEGORIES	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
ALTERNATIVE 7													
BASE CONSTRUCTION	0	0	0	291	1768	2908	2113	1093	0	0	0	0	0
CLUSTER CONSTRUCTION	0	0	0	1768	3439	2736	1837	670	0	0	0	0	0
ASSEMBLY & CHECKOUT	0	0	0	100	450	450	100	0	0	0	0	0	0
MILITARY OPERATIONS	0	0	0	0	2565	5130	7694	10366	10366	10366	10366	10366	10366
CIVILIAN OPERATIONS	0	0	0	0	176	372	637	833	833	833	833	833	833
INDIRECT	0	3	435	968	1285	2096	1960	1097	183	0	0	0	0
TOTAL	0	3	435	3127	9722	13811	14362	14060	11382	11199	11199	11199	11199
ALTERNATIVE 8B													
BASE CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0	0
CLUSTER CONSTRUCTION	0	0	0	0	310	2080	2837	336	0	0	0	0	0
ASSEMBLY & CHECKOUT	0	0	0	0	0	170	500	400	0	0	0	0	0
MILITARY OPERATIONS	0	0	0	0	0	0	0	0	0	0	0	0	0
CIVILIAN OPERATIONS	0	0	0	0	0	0	0	0	0	0	0	0	0
INDIRECT	0	0	0	28	106	0	0	145	78	9	0	0	0
TOTAL	0	0	0	28	616	3050	3337	1081	78	9	0	0	0

*EMPLOYMENT CATEGORY 1B FOR PRIMARY WORKER IN HOUSEHOLD SOURCE FOR SCIENCES, 1 NOV 80

Table 2.1.4-4.

PROJECTED CUMULATIVE POPULATION IN MIGRATION BY PROJECT-RELATED EMPLOYMENT CATEGORY, • BY ALTERNATIVE, IN DAIAM ASSUMING TREND BASELINE

ALTERNATIVE / CATEGORIES	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
ALTERNATIVE 7													
BASE CONSTRUCTION	0	0	0	38	258	392	277	143	0	0	0	0	0
CLUSTER CONSTRUCTION	0	0	0	754	2466	5259	7060	2342	0	0	0	0	0
ASSEMBLY & CHECKOUT	0	0	0	0	0	500	1190	1300	30	0	0	0	0
MILITARY OPERATIONS	0	0	0	0	151	302	433	610	610	610	610	610	610
CIVILIAN OPERATIONS	0	0	0	0	189	385	630	826	826	826	826	826	826
INDIRECT	0	0	481	1271	2109	3087	3035	2063	1885	493	188	177	177
TOTAL	0	0	481	2012	5173	9924	17625	8284	3371	1929	1624	1613	1613
ALTERNATIVE 8B													
BASE CONSTRUCTION	0	0	0	0	0	0	0	0	0	0	0	0	0
CLUSTER CONSTRUCTION	0	0	0	0	194	1257	3330	2011	0	0	0	0	0
ASSEMBLY & CHECKOUT	0	0	0	0	0	0	160	650	50	0	0	0	0
MILITARY OPERATIONS	0	0	0	0	0	0	0	0	0	0	0	0	0
CIVILIAN OPERATIONS	0	0	0	0	0	0	0	0	0	0	0	0	0
INDIRECT	0	0	0	21	157	0	0	15	105	0	0	0	0
TOTAL	0	0	0	21	351	1257	3490	2697	155	0	0	0	0

*EMPLOYMENT CATEGORY 1B FOR PRIMARY WORKER IN HOUSEHOLD SOURCE FOR SCIENCES, 1 NOV 80

Table 2.1.4-5.

PROJECTED CUMULATIVE POPULATION IN MIGRATION BY PLACE OF RESIDENCE, BY ALTERNATIVE, IN HARTLEY
ASSUMING TREND BASELINE

ALTERNATIVE / PLACE OF RESIDENCE	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
ALTERNATIVE 7													
CONSTRUCTION CAMPS	0	0	0	700	1525	973	100	0	0	0	0	0	0
OPERATIONS BASE	0	0	0	100	2727	5159	6880	8668	8293	8293	8293	8293	8293
LOCAL COMMUNITIES	0	3	435	2327	5670	7707	7382	5392	3009	2706	2706	2706	2706
TOTAL	0	3	435	3127	9922	13811	14362	14060	11382	11199	11199	11199	11199
ALTERNATIVE 8B													
CONSTRUCTION CAMPS	0	0	0	0	175	1143	1250	400	0	0	0	0	0
OPERATIONS BASE	0	0	0	0	0	0	0	0	0	0	0	0	0
LOCAL COMMUNITIES	0	0	0	28	441	1905	2087	481	78	9	0	0	0
TOTAL	0	0	0	28	616	3050	3337	1081	78	9	0	0	0

SOURCE: HDR SCIENCES, 1-NOV-80

Table 2.1.4-6.

PROJECTED CUMULATIVE POPULATION IN-MIGRATION BY PLACE OF RESIDENCE, BY ALTERNATIVE, IN DALLAM
ASSUMING TREND BASELINE

ALTERNATIVE / PLACE OF RESIDENCE	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
ALTERNATIVE 7													
CONSTRUCTION CAMPS	0	0	0	23	423	2078	3573	2173	50	0	0	0	0
OPERATIONS BASE	0	0	0	0	0	0	0	0	0	0	0	0	0
LOCAL COMMUNITIES	0	0	481	1989	4750	7826	9031	6111	3331	1929	1624	1613	1613
TOTAL	0	0	481	2012	5173	9924	12625	8284	3371	1929	1624	1613	1613
ALTERNATIVE 8B													
CONSTRUCTION CAMPS	0	0	0	0	0	48	1008	1348	50	0	0	0	0
OPERATIONS BASE	0	0	0	0	0	0	0	0	0	0	0	0	0
LOCAL COMMUNITIES	0	0	0	21	351	1209	2482	1349	105	0	0	0	0
TOTAL	0	0	0	21	351	1257	3490	2697	155	0	0	0	0

SOURCE: HDR SCIENCES, 1-NOV-80

EFFECTS ON LAND USE (2.1.5)

Community Land Use

Under Alternative 7 major community land use requirements will be experienced in Hartley and Dallam Counties (Texas) due to the location of a second operating base in Hartley County. Smaller impacts of a short term nature will be experienced under Alternative 8 because of DDA construction activity. Considerable impacts will also be experienced in Potter and Randall Counties (Texas) attributable to spillover effects. Long-term impacts of a moderate level will be experienced in Moore County under Alternative 7. See Table 2.1.5-1 for yearly land use requirements in Hartley and Dallam Counties.

Alternatives 7 and 8

The community land use requirements experienced under Alternative 7 (first operating base at Clovis, second operating base at Dalhart) are uniformly more significant than those associated with Alternative 8. Under Alternative 8, impacts in Hartley, Dallam, and Moore Counties are confined to the period 1988-1989, but for the entire period 1982-1994 in Potter and Randall Counties.

Impact On Availability Of Land

The combined Hartley/Dallam Counties peak requirements under Alternative 7 occurs in 1988 with 2,288 additional acres needed. The peak under Alternative 8 also occurs in 1998 and totals 579 acres. The former figure constitutes approximately 9 percent of total two-county urban land while the latter figure represents only 3 percent. While specific figures are not available it is assumed that a large percentage of the urban land in Hartley and Dallam Counties is vacant. As a result the peak period impacts on the availability of land are not foreseen to be significant. Determination of the impacts upon the individual communities has not been made due to a lack of sufficient data.

Spillover impacts in Moore County reach noticeable magnitudes only under Alternative 7 where they peak in 1988 at 460 acres. In Potter and Randall Counties (Amarillo is in Randall County) the level of impacts is considerable under Alternative 7 peaking at 2,082 acres in 1988. The metropolitan region of Amarillo is equipped to accommodate such moderate growth impacts. The spillover impacts in the above counties are not considered to be significant.

Availability of Land/Long-Term

There are long-term land requirements under Alternative 7 amounting to approximately 730 acres for Hartley and Dallam Counties combined. These demands are about 70 percent less than the peak period requirements and hence should not be significant. Spillover community land requirements into Moore and Potter/Randall Counties amount to 258 and 464 acres, respectively. These are not considered to be significant.

Other Impacts

The impact of growth in the communities of Dalhart and Hartley will be considerable. Projection of the percentage change that this growth will amount to

Table 2.1.5-1.

CUMULATIVE MAX RELATED LAND REQUIREMENTS (ACRES) BY USE CATEGORY, BY ALTERNATIVE IN HARLEY
ASSUMING TREND BASELINE

ALTERNATIVE / LAND USE CATEGORY	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
ALTERNATIVE 7													
PERMANENT HOMES	0	0	7	21	77	149	169	170	176	197	213	213	213
MOBILE HOMES	0	0	26	135	300	384	352	213	74	49	39	39	39
SUBTOTAL	0	0	33	156	377	533	521	403	250	246	252	252	252
RETAIL/COMM /INDUS	0	0	2	10	31	40	50	39	25	22	20	20	20
SIS AND IMYS	0	0	23	105	253	351	342	255	150	144	143	143	143
PUBLIC/INSTITUTIONAL	0	0	6	41	105	140	132	94	52	51	51	51	51
TOTAL	0	0	64	312	766	1072	1045	790	476	463	469	469	469
ALTERNATIVE 80													
PERMANENT HOMES	0	0	0	0	0	0	0	0	0	0	0	0	0
MOBILE HOMES	0	0	0	0	2	20	114	125	43	6	1	0	0
SUBTOTAL	0	0	0	0	2	20	114	125	43	6	1	0	0
RETAIL/COMM /INDUS	0	0	0	0	3	8	13	8	0	0	0	0	0
SIS AND IMYS	0	0	0	0	20	79	86	30	5	0	0	0	0
PUBLIC/INSTITUTIONAL	0	0	0	0	8	38	42	14	1	1	0	0	0
TOTAL	0	0	0	0	29	239	266	95	12	1	0	0	0

SOURCE: HDR SCIENCES, 1-NOV-80

CUMULATIVE MAX RELATED LAND REQUIREMENTS (ACRES) BY USE CATEGORY, BY ALTERNATIVE IN DALLAM
ASSUMING TREND BASELINE

ALTERNATIVE / LAND USE CATEGORY	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
ALTERNATIVE 7													
PERMANENT HOMES	0	0	0	21	51	104	120	176	194	137	126	125	125
MOBILE HOMES	0	0	29	118	275	439	502	285	92	36	23	23	23
SUBTOTAL	0	0	37	139	326	543	622	461	286	173	149	148	148
RETAIL/COMM /INDUS	0	0	3	11	26	38	44	30	13	6	6	6	6
SIS AND IMYS	0	0	24	94	221	362	416	298	173	101	86	85	85
PUBLIC/INSTITUTIONAL	0	0	7	33	82	137	161	100	49	31	26	25	25
TOTAL	0	0	71	277	655	1079	1244	889	521	311	267	264	264
ALTERNATIVE 80													
PERMANENT HOMES	0	0	0	0	0	0	0	0	0	0	0	0	0
MOBILE HOMES	0	0	0	0	23	73	149	81	8	0	0	0	0
SUBTOTAL	0	0	0	0	23	73	149	81	8	0	0	0	0
RETAIL/COMM /INDUS	0	0	0	0	3	11	15	10	5	0	0	0	0
SIS AND IMYS	0	0	0	0	16	50	103	56	5	0	0	0	0
PUBLIC/INSTITUTIONAL	0	0	0	0	5	27	49	27	1	1	0	0	0
TOTAL	0	0	0	0	46	139	316	174	14	0	0	0	0

SOURCE: HDR SCIENCES, 1-NOV-80

is not available at the present time. However, as noted for the other potential OB locations, rapid growth often is accompanied by symptoms of poor planning such as conflicting land uses, inefficient land use patterns, and the encroachment of urban land use into prime agricultural lands. At the present time the planning capabilities at the local level in Hartley and Dallam Counties is very rudimentary and hence the potential for adverse impacts on land use is high.

Conclusions

Community land use impacts on the availability of vacant land in Hartley and Dallam Counties cannot be determined with sufficient accuracy at the present time. However, the impacts are not expected to be significant. Impacts upon the individual communities of the above counties are also indeterminant at the present time. Spillover effects into the nearby counties have been projected and are not considered to be significant. Effects resulting from rapid growth are foreseen to be adverse upon the local communities partially attributable to a general lack of planning institutions and experience at the community and county levels.

Rural Land Use

This section will discuss two types of rural land uses that could be affected by a potential operating base near Dalhart, Texas. They are: agricultural, mining, grazing and recreation.

Agriculture

Figure 2.1.5-1 shows the potential operating base at Beryl, and the croplands in the area.

It can be seen that the base would occupy no existing cropland, nor are there any croplands within the suitability zone. Irrigated croplands do exist northeast of the suitability zone, however. Because of its proximity to the potential operating base to these croplands, there could be pressure for private urban development on them unless laws protecting such farmland are adopted and enforced by the county.

Effects on Recreation

There are no fishing or concentrated recreational areas located on the land designated for OB facilities. Lake Rita Blanca County Park is immediately adjacent to the northern suitability envelope (Figure 2.1.5-2). This area is not expected to be directly impacted by the construction of the OB primarily because of its value as a recreational resource. Dispersed recreational activities are generally not permitted by the private owners of the affected land.

Recreational demand on sites and resources in the Dalhart region is expected to increase as a result of the M-X induced in-migration.

In this region, activity occasions for camping and picnicking--activities requiring developed sites--are expected to increase by 12-15 percent and 20-25 percent respectively by 1990. With these projected demand increases without M-X, there will be a shortage of campsites and picnic tables. By the year 2000 in this region, 664 additional campsites and 4,518 picnic tables are expected to be needed to meet



Figure 2.1.5-1. Cropland and operating base in the vicinity of Dalhart, Texas.

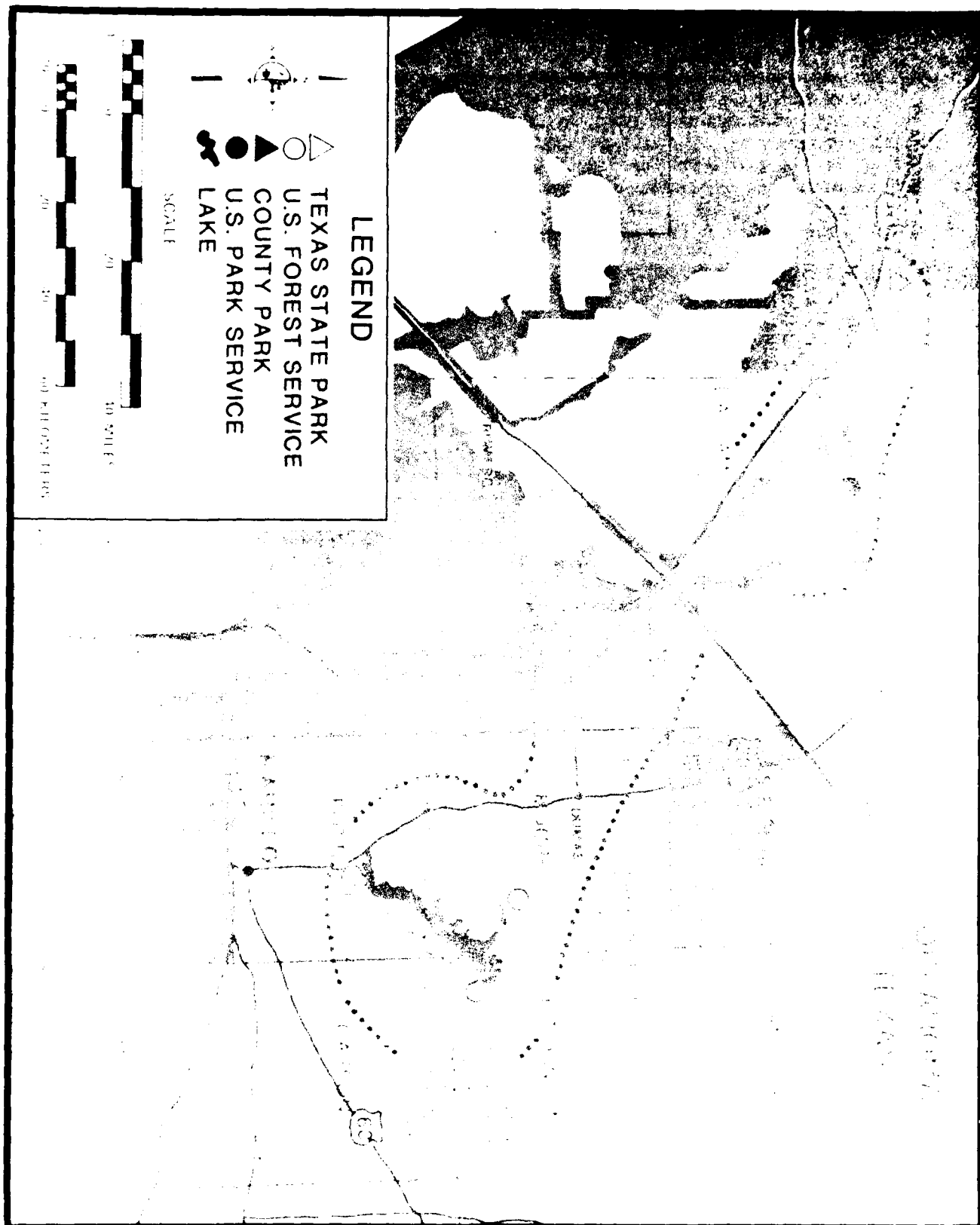


Figure 2.1.5-2. Area of influence for recreation for the Dalhart OB site.

future demands (Texas SCORP 1975). In New Mexico, additional campsite and picnic tables are also projected to meet the projected demands of 1990. The additional facility requirements of New Mexico are on the order of 6 to 7 times less than in Texas, however. The added 11,000 M-X induced in-migrants should increase the demand by approximately 243 percent and thus add to the projected shortages of campsites and picnic tables in this region. Sites expected to receive the greatest amount of this added demand are Lake Meredith National Recreation Area, Lake Rita Blanca County Park and Clayton Lake State Park.

EFFECTS ON LAND OWNERSHIP (2.1.6)

Figure 2.1.6-1 shows the potential operating base at Dalhart, Texas, and the land ownerships in the area. Table 2.1.6-1 shows the number of acres of land of each ownership type that would be occupied by the potential operating base and facilities, and the number of acres of each type within the suitability zone around the potential base.

It can be seen that 100 percent of the area of the operating base facilities would be located on private land. Suitability zone is also 100 percent private land.

Because of the mountainous character of most of the BLM land within the suitability zone, it is unlikely that the operating base could be relocated to take additional advantage of BLM land. The 3,200 acres of private land for an operating base at Beryl is equal to 0.4 percent of the private land in Iron County. This would be a very low impact on that resource.

The 6,440 of privately owned land required for the operating base facilities is equal to 0.7 percent of the private land in Hartley County. This loss of private land is not considered to be a significant impact.

EFFECTS ON HOUSING (2.1.7)

The cumulative total M-X-related housing unit requirements in local communities, by type of structure, and by alternative, for Hartley County, Texas, are given in Table 2.1.7-1. Under Alternative 7, the full-deployment alternative, the M-X-related housing requirements begin to appear in 1982, and reach a peak-year cumulative total of 2,518 housing units in 1987, comprised of 383 single-family units, 214 multi-family units, and 1,920 mobile homes. Thereafter, the requirements diminish, falling particularly rapidly in 1989 and 1990, to reach a long term level of 972 housing units in 1992, made up of 583 single-family homes, 194 multi-family units, and 194 mobile homes. With the exception of one year, 1990, the requirements for single-family houses continue, while the surpluses of housing as a result of the difference between peak-year and long term needs are made up of largely mobile homes and a few multi-family units. Mobile homes should be relatively easily removed, and the small surpluses of multi-family units can probably be absorbed by the local housing market. Alternative 8, the split-deployment scenario, has far fewer housing requirements than the full-deployment alternative. Its peak-year housing requirements total some 626 housing units, all of them mobile homes, and these needs are short-lived, dwindling to zero by 1991 (Table 2.1.7-1).

Dallam County, Texas, is also likely to be significantly impacted by the decision to locate an operating base near Dalhart, since the city of Dalhart straddles

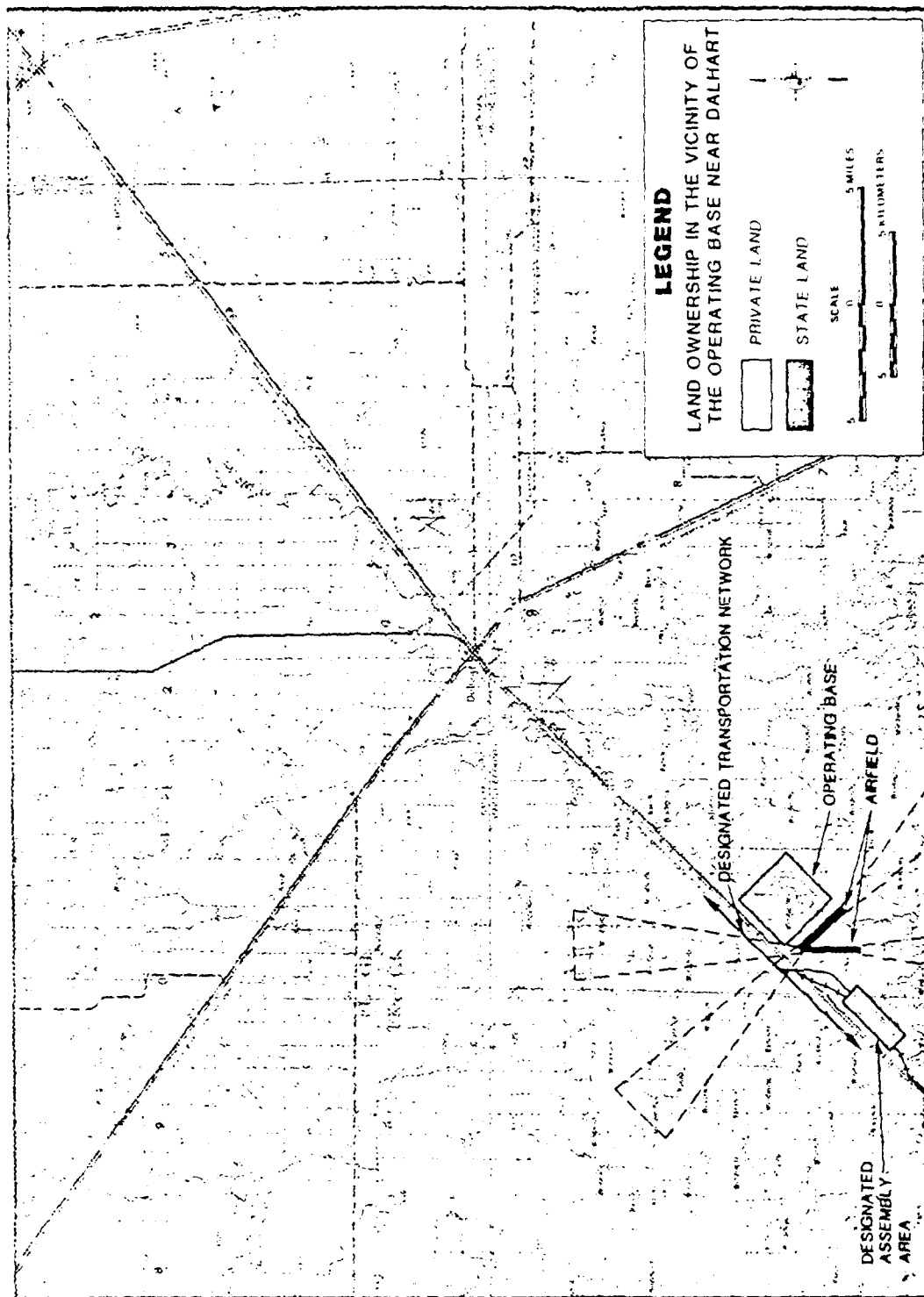


Figure 2.1.6-1. Land ownership in the vicinity of the operating base near Dalhart, Texas.

Table 2.1.6-1. Land ownership at potential
base facilities at Dalhart,
Texas.

OWNERSHIP TYPE	OPERATING BASE FACILITIES		SUITABILITY ZONE	
	ACRES	PERCENT	ACRES	PERCENT
Private	6,440	100	60,160	100
State	0	0	0	0
BLM	0	0	0	0
Total	6,400	100	60,160	100

3860

Source: Panhandle Regional Planning Commission
1978.

Table 2.1.7-1.

CUMULATIVE M-X RELATED HOUSING UNIT REQUIREMENTS IN LOCAL COMMUNITIES BY HOUSING TYPE, BY ALTERNATIVE, IN HARTLEY
ASSUMING TREND BASELINE

ALTERNATIVE / HOUSING TYPE	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
BASLINE REQUIREMENTS	1326	1355	1384	1413	1442	1471	1500	1527	1558	1587	1616	1645	1674
ALTERNATIVE 7													
SINGLE FAMILY UNITS	0	0	16	51	193	383	433	497	465	535	583	583	583
MULTI-FAMILY UNITS	0	0	16	45	130	214	245	240	208	194	194	194	194
MOBILE HOMES	0	1	131	675	1499	1920	1759	1063	368	243	194	194	194
TOTAL M-X RELATED	0	1	163	771	1822	2518	2437	1800	1041	972	972	972	972
M-X PLUS BASELINE	1326	1356	1547	2184	3264	3989	3937	3329	2599	2559	2588	2617	2646
ALTERNATIVE 8B													
SINGLE FAMILY UNITS	0	0	0	0	0	0	0	0	0	0	0	0	0
MULTI-FAMILY UNITS	0	0	0	0	0	0	0	0	0	0	0	0	0
MOBILE HOMES	0	0	0	11	140	571	626	215	29	3	0	0	0
TOTAL M-X RELATED	0	0	0	11	140	571	626	215	29	3	0	0	0
M-X PLUS BASELINE	1326	1355	1384	1424	1582	2042	2126	1744	1587	1590	1616	1645	1674

SOURCE HDR SCIENCES, 1-NOV-80

Table 2.1.7-2.

CUMULATIVE M-X RELATED HOUSING UNIT REQUIREMENTS IN LOCAL COMMUNITIES BY HOUSING TYPE, BY ALTERNATIVE, IN DALLAM
ASSUMING TREND BASELINE

ALTERNATIVE / HOUSING TYPE	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
BASLINE REQUIREMENTS	2644	2675	2706	2740	2767	2798	2829	2860	2895	2937	2984	3030	3076
ALTERNATIVE 7													
SINGLE FAMILY UNITS	0	0	18	49	122	243	307	455	509	570	645	742	842
MULTI-FAMILY UNITS	0	0	18	47	103	197	184	243	242	138	115	114	114
MOBILE HOMES	0	0	140	592	1375	2193	2509	1423	417	181	115	114	114
TOTAL M-X RELATED	0	0	160	639	1400	2414	3000	2131	1211	489	374	370	370
M-X PLUS BASELINE	2644	2675	2866	3429	4367	5412	5829	4991	4106	3626	3558	3600	3646
ALTERNATIVE 8B													
SINGLE FAMILY UNITS	0	0	0	0	0	0	0	0	0	0	0	0	0
MULTI-FAMILY UNITS	0	0	0	0	0	0	0	0	0	0	0	0	0
MOBILE HOMES	0	0	0	8	117	343	745	404	39	0	0	0	0
TOTAL M-X RELATED	0	0	0	8	117	343	745	404	39	0	0	0	0
M-X PLUS BASELINE	2644	2675	2706	2748	2884	3161	3574	3264	2924	2937	2984	3030	3076

SOURCE HDR SCIENCES, 1-NOV-80

the border of Hartley and Dallam Counties and considerable spill-over effects can be anticipated. There the cumulative total housing unit requirements in local communities, by type of structure, and by alternative, for Dallam County, Texas, are given in Table 2.1.7-2. With Alternative 7, the full-deployment scenario in Texas/New Mexico, the peak-year housing requirements occur in 1988, when some 3,000 units are projected to be needed, including 307 single-family units, 184 multi-family units, and 2,509 mobile homes. Thereafter, housing needs related to M-X fall off, reaching just 570 units by 1994, and comprising 342 single-family units, 114 multi-family units, and 114 mobile homes. This big of a difference between peak-year and long term housing requirements will create surpluses of some permanent housing units, which hopefully can be gradually absorbed by the local housing market; but also large surpluses of mobile homes, which will probably have to be removed. Alternative 8, the split-deployment alternative, has far fewer housing requirements; indeed only 25 percent of the full-deployment's peak-year needs. These are all in mobile homes, totaling some 745 by 1988, since they will be needed only for DDA construction activities, which end by 1991.

With an operating base near Dalhart in Hartley County, Moore and Potter/Randall Counties are also projected to be affected by spillover effects from Dalhart. In the case of Moore County, the long-term housing requirements amount to 554 units in 1994 and can be directly attributed to spillover effects. These include 332 single-family units, 111 multi-family units, and 111 mobile homes. Similarly, Potter and Randall County's long term requirement of nearly 1,000 housing units can be attributed to direct worker demands who live in Potter or Randall County, but who work at the Dalhart operating base.

EFFECTS ON COMMUNITY INFRASTRUCTURE (2.1.8)

M-X deployment Alternative 7 identifies a potential second operating base location in the vicinity of Dalhart (Dallam County), Texas. Construction of such a facility would result in the in-migration of construction workers and their families in the short-term, as well as long-term base personnel. This population in-migration will place additional demands on community infrastructure necessitating the recruitment of more teachers, health care personnel, law enforcement and fire personnel. There will also be impacts on parks and recreation and on basic utilities such as water and solid waste disposal, creating the need for expanded or new facilities. The accommodation of M-X-related needs for community services will be fulfilled primarily by Hartley and Dallam Counties. Neighboring counties, for the most part, will experience lesser demands of a temporary nature. For that reason the following discussion will concentrate upon the effects likely to be experienced in Hartley and Dallam Counties under Alternative 7.

Education

Tables 2.1.8-1 and 2.1.8-2 present the number of school-aged children expected to enter the Hartley and Dallam Independent School Districts respectively, by class grouping for each M-X alternative between the years 1982 and 1994 on an annual basis. As indicated, initial enrollment additions to both the Hartley and Dallam Independent School Districts would occur in 1984. The number of initial enrollments expected (about 90) would account for slightly less than 9.0 percent of the nearly 990 resident school-aged children forecast to already require educational services in Hartley County. In Dallam County, initial enrollments of approximately

Table 2.1.8-1.

PROJECTED BASELINE AND M-8 INDUCED SCHOOL ENROLLMENTS BY GRADE LEVEL, BY ALTERNATIVE, IN IMATLEY
ADJUSTING TREND BASELINE

ALTERNATIVE / NUMBER PUPILS BY GRADE LEVEL	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
BASELINE ENROLLMENTS	948	949	970	1011	1032	1053	1073	1094	1115	1134	1157	1177	1198
ALTERNATIVE 7													
K-4	0	0	44	202	1171	1747	1903	2000	1647	1680	1630	1630	1630
7-9	0	0	0	144	505	874	932	1000	834	828	823	828	823
10-12	0	0	0	144	505	874	932	1000	834	828	823	828	823
TOTAL M-8 RELATED	0	0	0	288	1020	1747	1903	2000	1647	1680	1630	1630	1630
M-8 PLUS BASELINE	948	949	970	1299	2052	3200	3576	3694	3292	3314	3287	3301	3301
PERCENT DIFFERENCE FROM BASELINE	0.0	0.1	0.0	28.8	103.2	174.7	190.3	200.0	164.7	168.0	163.0	163.0	163.0
ALTERNATIVE 8B													
K-4	0	0	0	0	0	0	0	0	0	0	0	0	0
7-9	0	0	0	0	0	0	0	0	0	0	0	0	0
10-12	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL M-8 RELATED	0	0	0	0	0	0	0	0	0	0	0	0	0
M-8 PLUS BASELINE	948	949	970	1011	1032	1053	1073	1094	1115	1134	1157	1177	1198
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SOURCE: ISM SCIENCES, 1-NOV-80

Table 2.1.8-2.

PROJECTED BASELINE AND M-8 INDUCED SCHOOL ENROLLMENTS BY GRADE LEVEL, BY ALTERNATIVE, IN DALAN
ADJUSTING TREND BASELINE

ALTERNATIVE / NUMBER PUPILS BY GRADE LEVEL	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
BASELINE ENROLLMENTS	1780	1801	1822	1840	1854	1864	1873	1882	1891	1900	1909	1918	1927
ALTERNATIVE 7													
K-4	0	0	0	0	0	0	0	0	0	0	0	0	0
7-9	0	0	0	0	0	0	0	0	0	0	0	0	0
10-12	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL M-8 RELATED	0	0	0	0	0	0	0	0	0	0	0	0	0
M-8 PLUS BASELINE	1780	1801	1822	1840	1854	1864	1873	1882	1891	1900	1909	1918	1927
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ALTERNATIVE 8B													
K-4	0	0	0	0	0	0	0	0	0	0	0	0	0
7-9	0	0	0	0	0	0	0	0	0	0	0	0	0
10-12	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL M-8 RELATED	0	0	0	0	0	0	0	0	0	0	0	0	0
M-8 PLUS BASELINE	1780	1801	1822	1840	1854	1864	1873	1882	1891	1900	1909	1918	1927
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SOURCE: ISM SCIENCES, 1-NOV-80

100 would contribute approximately 5.0 percent over the 1,820 enrollments expected under normal growth conditions in 1984.

Peak levels of enrollment generated by M-X into Hartley and Dallam Counties would occur in 1989 and 1988 respectively. M-X attributable enrollments may increase the number of enrollments in Hartley County by up to between 360 and 370 percent over the nearly 1,100 enrollments expected under normal growth conditions. In Dallam County, peak level M-X-related enrollments would result in increases ranging between 130.0 and 140.0 percent over the number of projected baseline enrollments which are estimated to number approximately 1,900.

Subsequent to peak year enrollment demands resulting from M-X, enrollment levels can be expected to stabilize, the level of which may be useful for long-range educational planning purposes. Table 2.1.8-1 indicates that the Hartley Independent School District may require adequate facilities to accommodate approximately 4,500 pupils of which between approximately 70.0 and 75.0 percent would be attributable to M-X. Long-term enrollment increases to the Dallam County School District are expected to result in a stabilized enrollment level of approximately 2,450 students, of which approximately 16.0 percent would be attributable to M-X.

The number of teachers required to accommodate M-X-related enrollment demands in Hartley County under Alternative 7 in the long-term approximate 140, while for Dallam County, approximately 16 would be required. The long-term teacher requirement attributable to M-X (140) when combined with the 54 expected to be needed to serve long-term baseline enrollment levels can be expected to create difficulties for the Hartley Independent School District in terms of the ability of the local area to attract and retain a staffing level of this magnitude. The annual projected baseline and M-X-related teacher requirements between 1982 and 1994 for each grade group are expressed in Tables 2.1.8-3 and 2.1.8-4 for Hartley and Dallam Independent School Districts, respectively.

Health Care

M-X project related requirements for health care personnel and facilities are shown in Tables 2.1.8-5 and 2.1.8-6 for Hartley and Dallam Counties. Under Alternative 7 with the second base located near Dalhart, the need for health care personnel peaks in 1987, when 7 physicians, 22 nurses, 2 dentists, 1 mental health personnel and 18 additional hospital beds would be required in Hartley County with corresponding requirements of 10, 25, 2, 1 and 24 in Dallam County. M-X-related peak demand increases the normal baseline growth requirements by about 130 percent in Hartley County and 140 percent in Dallam County, straining the meager resources of these counties. In the long run, demand decreases to 1 physician, 3 nurses and 3 hospital beds in Hartley County, and 1 physician, 4 nurses and 4 hospital beds in Dallam County, forming about 15 percent of the normal baseline demand in Hartley and 10 percent in Dallam County.

Location of a base near Dalhart would have some spillover population in Moore, Potter and Randall Counties in Texas. The peak year demand in these counties would be 13 additional health care personnel and 8 hospital beds in Moore and 68 health care personnel and 41 beds in Potter and Randall Counties which form the Amarillo metropolitan area. In Moore County, M-X-related requirements would add about 15 percent to the normal growth requirements but in the Amarillo metropolitan area, this addition would be less than 6 percent.

Table 2.1.8-3.

PROJECTED BASELINE AND M-X INDUKED TEACHER REQUIREMENTS BY GRADE LEVEL, BY ALTERNATIVE, IN QUARTERLY
ASSUMING TREND BASELINE

ALTERNATIVE / NUMBER TEACHERS BY GRADE LEVEL	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
BASELINE REQUIREMENTS	43	44	45	45	46	47	48	49	50	51	52	53	54
ALTERNATIVE 7													
K 6	0	0	2	13	47	70	79	80	67	66	66	66	66
7 9	0	0	1	7	25	30	43	41	36	36	36	36	36
10-12	0	0	1	8	27	40	45	45	38	38	38	38	38
TOTAL M-X RELATED	0	0	4	28	99	148	168	169	141	139	139	139	139
M-X PLUS BASELINE	43	44	49	73	145	195	216	218	191	190	191	192	193
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	8.9	60.9	211.0	309.2	314.2	339.7	278.1	269.1	264.3	257.6	255.1
ALTERNATIVE 8B													
K 6	0	0	0	0	3	13	14	4	0	0	0	0	0
7 9	0	0	0	0	1	7	8	2	0	0	0	0	0
10-12	0	0	0	0	2	7	8	2	0	0	0	0	0
TOTAL M-X RELATED	0	0	0	0	6	28	30	9	1	0	0	0	0
M-X PLUS BASELINE	43	44	45	45	52	75	78	58	51	51	52	53	54
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.0	12.8	58.5	61.5	18.1	2.0	0.0	0.0	0.0	0.0

SOURCE: HOB SCIENCES, 1-NOV-80

Table 2.1.8-4.

PROJECTED BASELINE AND M-X INDUKED TEACHER REQUIREMENTS BY GRADE LEVEL, BY ALTERNATIVE, IN DALLAM
ASSUMING TREND BASELINE

ALTERNATIVE / NUMBER TEACHERS BY GRADE LEVEL	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
BASELINE REQUIREMENTS	80	81	82	83	84	85	86	87	88	89	91	92	94
ALTERNATIVE 7													
K 6	0	0	2	10	26	44	51	31	15	9	8	8	8
7 9	0	0	1	6	14	24	28	17	8	5	4	4	4
10-12	0	0	1	6	15	25	29	18	8	5	4	4	4
TOTAL M-X RELATED	0	0	4	22	55	92	107	63	31	19	16	16	16
M-X PLUS BASELINE	80	81	86	105	139	177	193	152	119	108	107	108	110
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	4.8	26.2	64.9	107.4	125.8	74.2	35.0	21.1	17.5	17.2	17.0
ALTERNATIVE 8B													
K 6	0	0	0	0	2	8	17	9	0	0	0	0	0
7 9	0	0	0	0	1	5	9	5	0	0	0	0	0
10-12	0	0	0	0	1	5	10	5	0	0	0	0	0
TOTAL M-X RELATED	0	0	0	0	4	18	36	20	1	0	0	0	0
M-X PLUS BASELINE	80	81	82	81	88	103	122	107	69	89	91	92	94
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.0	4.7	21.0	41.6	22.8	11.1	0.0	0.0	0.0	0.0

SOURCE: HOB SCIENCES, 1-NOV-80

Table 2.1.8-5.

PROJECTED BASELINE AND H-1 RELATED HEALTH SERVICES AND HOSPITAL BED REQUIREMENTS, IN MANITOBY
ASSUMING TREND BASELINE

ALTERNATIVE / REQUIREMENTS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
BASELINE													
PHYSICIANS	9	5	5	5	5	6	6	6	6	6	6	6	6
REGISTERED NURSES	16	16	17	17	17	18	18	18	18	19	20	20	20
DENTISTS	1	1	2	2	2	2	2	2	2	2	2	2	2
MENTAL HEALTH PERSON	0	1	1	1	1	1	1	1	1	1	1	1	1
HOSPITAL BEDS	14	14	15	15	15	16	16	16	17	17	17	18	18
ALTERNATIVE 7													
PHYSICIANS	0	0	0	2	5	7	7	4	1	1	1	1	1
REGISTERED NURSES	0	0	2	2	15	23	19	12	4	3	3	3	3
DENTISTS	0	0	0	0	1	2	2	1	0	0	0	0	0
MENTAL HEALTH PERSON	0	0	0	0	0	1	1	0	0	0	0	0	0
HOSPITAL BEDS	0	0	1	6	13	10	16	10	4	3	3	3	3
ALTERNATIVE 8B													
PHYSICIANS	0	0	0	0	0	1	2	0	0	0	0	0	0
REGISTERED NURSES	0	0	0	0	1	3	3	1	0	0	0	0	0
DENTISTS	0	0	0	0	0	0	0	0	0	0	0	0	0
MENTAL HEALTH PERSON	0	0	0	0	0	0	0	0	0	0	0	0	0
HOSPITAL BEDS	0	0	0	0	1	3	4	1	0	0	0	0	0

SOURCE: HORN SCIENCES, 1 NOV 80

Table 2.1.8-6.

PROJECTED BASELINE AND H-1 RELATED HEALTH SERVICES AND HOSPITAL BED REQUIREMENTS, IN DARTMOUTH
ASSUMING TREND BASELINE

ALTERNATIVE / REQUIREMENTS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
BASELINE													
PHYSICIANS	10	10	10	10	10	10	10	11	11	11	11	11	11
REGISTERED NURSES	30	31	31	31	32	32	32	33	33	34	34	35	35
DENTISTS	2	3	3	3	3	3	3	3	3	4	4	4	4
MENTAL HEALTH PERSON	1	1	1	1	1	1	1	2	2	2	2	2	2
HOSPITAL BEDS	27	27	29	29	29	29	29	29	30	30	30	31	31
ALTERNATIVE 7													
PHYSICIANS	0	0	0	2	5	9	10	7	4	2	1	1	1
REGISTERED NURSES	0	0	2	6	14	23	23	20	12	5	4	4	4
DENTISTS	0	0	0	0	1	2	2	2	1	0	0	0	0
MENTAL HEALTH PERSON	0	0	0	0	0	1	1	1	0	0	0	0	0
HOSPITAL BEDS	0	0	1	6	13	22	24	19	10	5	4	4	4
ALTERNATIVE 8B													
PHYSICIANS	0	0	0	0	0	1	2	1	0	0	0	0	0
REGISTERED NURSES	0	0	0	0	1	2	4	2	0	0	0	0	0
DENTISTS	0	0	0	0	0	0	0	0	0	0	0	0	0
MENTAL HEALTH PERSON	0	0	0	0	0	0	0	0	0	0	0	0	0
HOSPITAL BEDS	0	0	0	0	1	2	5	2	0	0	0	0	0

SOURCE: HORN SCIENCES, 1 NOV 80

Public Safety

Tables 2.1.8-7 through 2.1.8-10 present the requirements for law enforcement and fire personnel in Hartley and Dallam Counties resulting from the M-X project. As indicated, additional requirements for police and fire personnel will occur around 1985 under Alternative 7, but not until 1986 or 1987 under Alternative 8. When the secondary operating base is located near Dalhart (Alternative 7) the police and fire requirements expected initially in Hartley County (6 police officers and 3 fire fighters) amount to, respectively, 85.7 and 50 percent more than what would be required under normal growth. Initial effects will be less in Dallam County, requirements being 28.6 percent and 27.3 percent above baseline for police and fire, respectively, in 1985. These figures represent sudden and substantial increases in the need for services which may be difficult to meet in the first year of impacts.

Hartley and Dallam Counties' police and fire personnel requirements peak in 1988 under both alternatives. The number of additional law enforcement personnel is expected to be 350 percent in Hartley County and 178.6 percent in Dallam County above baseline projections in the peak year of Alternative 7. This significant increase will likely place heavy burdens on the existing law enforcement systems in these counties. Problems of over crowded facilities, particularly jails and of attracting and keeping enough qualified people to serve as deputies and police officers will be critical ones.

In Hartley County M-X-related fire personnel requirements reach a level 200 percent over baseline in the peak year of Alternative 7. In Dallam County the corresponding figure is 116.7 percent. Increases this sizable will put strains on the existing fire protection services in these counties. The protection forces in the two counties are composed primarily of volunteers. With the influx of a large population, the volunteer force may find it difficult to continue to provide adequate fire protection, particularly for scattered mobile homes and large commercial buildings. Under Alternative 8, although public safety personnel requirements are less than under Alternative 7, they still represent substantial increases in the need for services, which may be difficult to meet in the peak year.

Subsequent to peak year demands on public safety services the out-migration of construction workers will occur resulting in a continuing decrease at the county level in total personnel requirements attributable to M-X deployment. Personnel requirements in Hartley and Dallam Counties stabilize and reach a steady state between 1990 and 1992 depending on the type of service and alternative. This is the level of impact which can be most usefully mitigated through long-range planning. The aforementioned tables indicate the number of police and fire personnel that will be required in the long term and the percent over baseline requirements that they represent. No long-term effects are expected under Alternative 8. In Hartley County, although requirements will remain high (244.4 above baseline projections in 1994), with sufficient advance planning and funding the impacts can probably be successfully mitigated through substantial and permanent expansion of police and fire facilities and personnel.

In Dallam County however, a boom-bust phenomenon will be observed. For example, police requirements due to M-X drop from 25 in the peak year to 3 in the long-term under Alternative 7. Since it is highly unlikely that police and fire personnel can be recruited to an area where demand for them will be shortlived, the

Table 2.1.8-7.

PROJECTED BASELINE AND M-X RELATED REQUIREMENTS FOR LAW ENFORCEMENT PERSONNEL BY ALTERNATIVE, IN HARTLEY
ASSUMING TREND BASELINE

ALTERNATIVE / PERSONNEL REQUIREMENTS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
BASELINE REQUIREMENTS	7	7	7	7	7	0	0	0	0	0	0	0	0
ALTERNATIVE 7													
M-X REQUIREMENTS	0	0	0	6	19	27	20	20	22	22	23	22	22
M-X PLUS BASELINE	7	7	7	13	26	35	36	36	30	30	30	31	31
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	77.1	239.3	333.3	339.0	332.5	256.4	251.7	247.2	242.0	238.6
ALTERNATIVE 8B													
M-X REQUIREMENTS	0	0	0	0	1	6	6	2	0	0	0	0	0
M-X PLUS BASELINE	7	7	7	7	8	14	14	10	8	8	8	9	9
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.0	12.6	74.1	72.6	23.0	0.0	0.0	0.0	0.0	0.0

SOURCE: HUR SCIENTISTS, 1-MIV-80

Table 2.1.8-8.

PROJECTED BASELINE AND M-X RELATED REQUIREMENTS FOR LAW ENFORCEMENT PERSONNEL BY ALTERNATIVE, IN DALLAM
ASSUMING TREND BASELINE

ALTERNATIVE / PERSONNEL REQUIREMENTS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
BASELINE REQUIREMENTS	13	13	14	14	14	14	14	14	15	15	15	15	15
ALTERNATIVE 7													
M-X REQUIREMENTS	0	0	1	4	10	19	25	16	6	3	3	3	3
M-X PLUS BASELINE	13	13	15	18	24	33	39	30	21	18	18	18	18
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	7.1	28.2	69.7	131.0	170.5	108.0	40.0	19.7	19.4	19.1	18.8
ALTERNATIVE 8B													
M-X REQUIREMENTS	0	0	0	0	0	2	7	3	0	0	0	0	0
M-X PLUS BASELINE	13	13	14	14	14	16	21	19	15	15	15	15	15
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.0	0.0	13.8	47.7	33.7	0.0	0.0	0.0	0.0	0.0

SOURCE: HUR SCIENTISTS, 1-MIV-80

Table 2.1.8-9.

PROJECTED BASELINE AND M-X RELATED REQUIREMENTS FOR FIRE PROTECTION PERSONNEL BY ALTERNATIVE, IN DARTLEY
ASSUMING TREND BASELINE

ALTERNATIVE / PERSONNEL REQUIREMENTS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
BASLINE REQUIREMENTS	6	6	6	6	6	6	6	6	7	7	7	7	7
ALTERNATIVE 7													
M-X REQUIREMENTS	0	0	0	3	9	12	12	8	5	4	4	4	4
M-X PLUS BASELINE	6	6	6	9	15	18	18	14	12	11	11	11	11
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	46.7	137.4	179.6	176.1	115.2	70.6	55.5	54.5	53.5	52.6
ALTERNATIVE 8B													
M-X REQUIREMENTS	0	0	0	0	0	3	3	1	0	0	0	0	0
M-X PLUS BASELINE	6	6	6	6	6	9	9	7	7	7	7	7	7
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.0	0.0	44.9	44.0	14.4	0.0	0.0	0.0	0.0	0.0

SOURCE: HMM SERVICES, 1 NOV 80

Table 2.1.8-10.

PROJECTED BASELINE AND M-X RELATED REQUIREMENTS FOR FIRE PROTECTION PERSONNEL BY ALTERNATIVE, IN DALLAM
ASSUMING TREND BASELINE

ALTERNATIVE / PERSONNEL REQUIREMENTS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
BASLINE REQUIREMENTS	11	11	11	11	11	11	12	12	12	12	12	12	13
ALTERNATIVE 7													
M-X REQUIREMENTS	0	0	0	3	7	12	14	10	5	3	2	2	2
M-X PLUS BASELINE	11	11	11	14	18	23	26	22	17	15	14	14	15
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	25.6	59.2	100.3	115.8	81.8	40.4	23.9	15.7	15.4	15.2
ALTERNATIVE 8B													
M-X REQUIREMENTS	0	0	0	0	0	2	4	2	0	0	0	0	0
M-X PLUS BASELINE	11	11	11	11	11	13	16	14	12	12	12	12	13
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.0	0.0	16.7	33.3	16.4	0.0	0.0	0.0	0.0	0.0

SOURCE: HMM SERVICES, 1 NOV 80

pressure on the present public safety system will probably be extreme in the peak years.

Parks and Recreation

M-X-induced population immigration into the Dalhart area will create an increased demand for both urban and regional parks and recreational facilities in Hartley and Dallam Counties. This increase in demand could stress existing urban facilities. To meet the increased needs, recreation planning capabilities, funds and land will be required. The land requirements for expansion of local recreational facilities are presented in Table 2.1.8-11 and 2.1.8-12.

The projected population growth due to M-X would increase the peak year land requirements for recreation parks by 49 acres and long-term requirements by 19 acres in Hartley County and by 57 and 10 acres in Dallam County if Dalhart is chosen as the site for the second base. Additional rural acreage may be required for such recreational pursuits as off-road vehicular activity in order to spare habitats of rare and endangered species of plants and wildlife.

Although sufficient land would be available as open space in these generally rural counties, provision of local parks and recreation facilities would require advance, long-range planning.

Solid Waste Disposal

M-X-induced in-migration to the Dalhart area will create additional quantities of solid wastes not only in residences, but also in the additional business and governmental activities required to support this population increment.

The population corresponding to the trend baseline growth will exhaust the 77 acres currently available near Dalhart for solid waste disposal by the year 2000. If Dalhart is chosen as the site for the second base, the M-X-induced population demands for solid-waste disposal land area will begin in 1984. About 10 acres of land fill area for Dallam County and another 13 acres for the Hartley County will provide for the M-X-induced solid waste stream through 2009, that is over the 20-year operational life of the M-X system.

The effects of M-X OB site on land requirements for solid waste disposal are illustrated in Tables 2.1.8-13 and 2.1.8-14.

EFFECTS ON QUALITY OF LIFE (2.1.9)

The impact projections are conditional in that they are contingent on the actions taken by policy makers and also on the basic assumptions concerning factors such as the levels and pace of development which will occur. Moreover, the components of quality of life are numerous and complex and there is a great deal of uncertainty as to the probable outcomes since the basic models are lacking. Individual preference functions are unknown and community preference functions are hard to ascertain. Nevertheless, an attempt has been made to provide comparisons, within the framework of certain assumptions, suggestive of the trend of growth impacts on the communities in question.

Table 2.1.8-11.

PROJECTED H-X RELATED LAND REQUIREMENTS FOR PARKS AND PLAYGROUNDS, BY ALTERNATIVE, IN HARTLEY
ASSUMING TREND BASELINE

ALTERNATIVE / LAND REQUIREMENTS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
ALTERNATIVE 7													
PLAYGROUNDS	0	0	0	2	6	8	7	5	3	3	3	3	3
NEIGHBORHOOD PARKS	0	0	1	3	7	10	10	7	4	4	4	4	4
COMMUNITY PARKS	0	0	2	9	23	31	30	22	12	12	12	12	12
TOTAL	0	0	3	14	36	49	47	34	19	19	19	19	19
ALTERNATIVE 8B													
PLAYGROUNDS	0	0	0	0	0	2	2	1	0	0	0	0	0
NEIGHBORHOOD PARKS	0	0	0	0	1	2	3	1	0	0	0	0	0
COMMUNITY PARKS	0	0	0	0	2	8	8	3	0	0	0	0	0
TOTAL	0	0	0	0	3	12	13	5	0	0	0	0	0

SOURCE: HDR SCIENCES, 1-NOV-80

Table 2.1.8-12.

PROJECTED H-X RELATED LAND REQUIREMENTS FOR PARKS AND PLAYGROUNDS, BY ALTERNATIVE, IN DALIAN
ASSUMING TREND BASELINE

ALTERNATIVE / LAND REQUIREMENTS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
ALTERNATIVE 7													
PLAYGROUNDS	0	0	0	2	3	6	7	6	3	2	2	2	2
NEIGHBORHOOD PARKS	0	0	1	3	6	10	12	8	4	3	2	2	2
COMMUNITY PARKS	0	0	2	8	19	31	36	24	13	8	6	6	6
TOTAL	0	0	3	13	30	49	57	38	20	13	10	10	10
ALTERNATIVE 8B													
PLAYGROUNDS	0	0	0	0	0	1	2	1	0	0	0	0	0
NEIGHBORHOOD PARKS	0	0	0	0	0	2	3	2	0	0	0	0	0
COMMUNITY PARKS	0	0	0	0	1	5	10	5	0	0	0	0	0
TOTAL	0	0	0	0	1	8	15	8	0	0	0	0	0

SOURCE: HDR SCIENCES, 1-NOV-80

Table 2.1.8-13.

PROJECTED BASELINE AND M-X RELATED LAND REQUIREMENTS (ACRES) FOR SOLID WASTE DISPOSAL, BY ALTERNATIVE, IN HARTLEY ASSUMING TREND BASELINE

ALTERNATIVE / LAND REQUIREMENTS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
BASELINE REQUIREMENTS	0.3	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7
ALTERNATIVE 7													
M-X REQUIREMENTS	0.0	0.0	0.1	0.3	0.9	1.2	1.1	0.8	0.3	0.4	0.4	0.4	0.4
M-X PLUS BASELINE	0.3	0.6	0.7	0.9	1.5	1.8	1.7	1.4	1.1	1.1	1.1	1.1	1.1
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	17.3	31.4	151.1	197.5	177.6	126.7	77.7	61.0	59.7	58.7	57.8
ALTERNATIVE 8B													
M-X REQUIREMENTS	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0
M-X PLUS BASELINE	0.3	0.6	0.6	0.6	0.7	0.9	0.9	0.7	0.6	0.7	0.7	0.7	0.7
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.0	16.8	49.4	48.4	13.8	0.0	0.0	0.0	0.0	0.0

SOURCE: HDR SCIENCES, 4-NW-80

Table 2.1.8-14.

PROJECTED BASELINE AND M-X RELATED LAND REQUIREMENTS (ACRES) FOR SOLID WASTE DISPOSAL, BY ALTERNATIVE, IN DALLAS ASSUMING TREND BASELINE

ALTERNATIVE / LAND REQUIREMENTS	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
BASELINE REQUIREMENTS	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2
ALTERNATIVE 7													
M-X REQUIREMENTS	0.0	0.0	0.1	0.3	0.7	1.2	1.4	0.9	0.3	0.3	0.2	0.2	0.2
M-X PLUS BASELINE	1.0	1.0	1.2	1.4	1.8	2.3	2.5	2.0	1.4	1.4	1.4	1.4	1.4
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	9.5	20.2	65.1	110.3	127.3	81.0	44.4	26.3	17.2	17.0	16.7
ALTERNATIVE 8B													
M-X REQUIREMENTS	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.2	0.0	0.0	0.0	0.0	0.0
M-X PLUS BASELINE	1.0	1.0	1.1	1.1	1.2	1.3	1.5	1.3	1.1	1.1	1.2	1.2	1.2
PERCENT DIFFERENCE FROM BASELINE	0.0	0.0	0.0	0.0	9.3	18.4	36.4	18.0	0.0	0.0	0.0	0.0	0.0

SOURCE: HDR SCIENCES, 4-NW-80

The rapid population growth that can be anticipated if an operating base is located in the vicinity of Dalhart will result in many objective and subjective changes in the quality of life in the surrounding communities. Figure 2.1.9-1 shows potential changes in the quality of life that might reasonably be expected. The histograms portray an assessment of the impact on the quality of life, as measured by a particular index, in a range from acceptable to unacceptable. The four segments of the figure depict: (a) Baseline I, which simply portrays the county's particular index value as a proportion of the corresponding state index value (where acceptable denotes a value that is 50 percent better than the state figure, and unacceptable represents a value that is 100 percent worse than the state figure), for Baseline II quality of life indices; (b) Baseline II, the anticipated changes in these indices without M-X deployment in the county, but with normal projected population growth; (c) anticipated changes during the M-X construction phase compared to Baseline II; and (d) anticipated changes during the M-X operations phase compared to Baseline II. Changes in the indices are assumed to be related to the rapidity of population growth. Since the quality of life literature points to a rapid deterioration of social organization with boomtown growth, it is assumed that such indices as crime, alcohol and substance abuse, divorce and suicide rates, may increase as much as four times the compound annual population growth rate. The economic well-being indices, e.g., per capita income, the unemployment rate, and the public assistance ratio (the proportion of the population on public assistance of some kind), on the other hand, are assumed to change at only double the annual average population change rate. The remaining indices, housing conditions (a measure of overcrowding), school overcrowding (the ratio of pupils to teachers), health care (doctors, dentists and registered nurses per 1,000 population, the number of hospital beds per 1,000), and public safety (ratio of police officers to population), collectively referred to as the community service indices, are all assumed to change inversely and linearly with the average annual rate of population change.

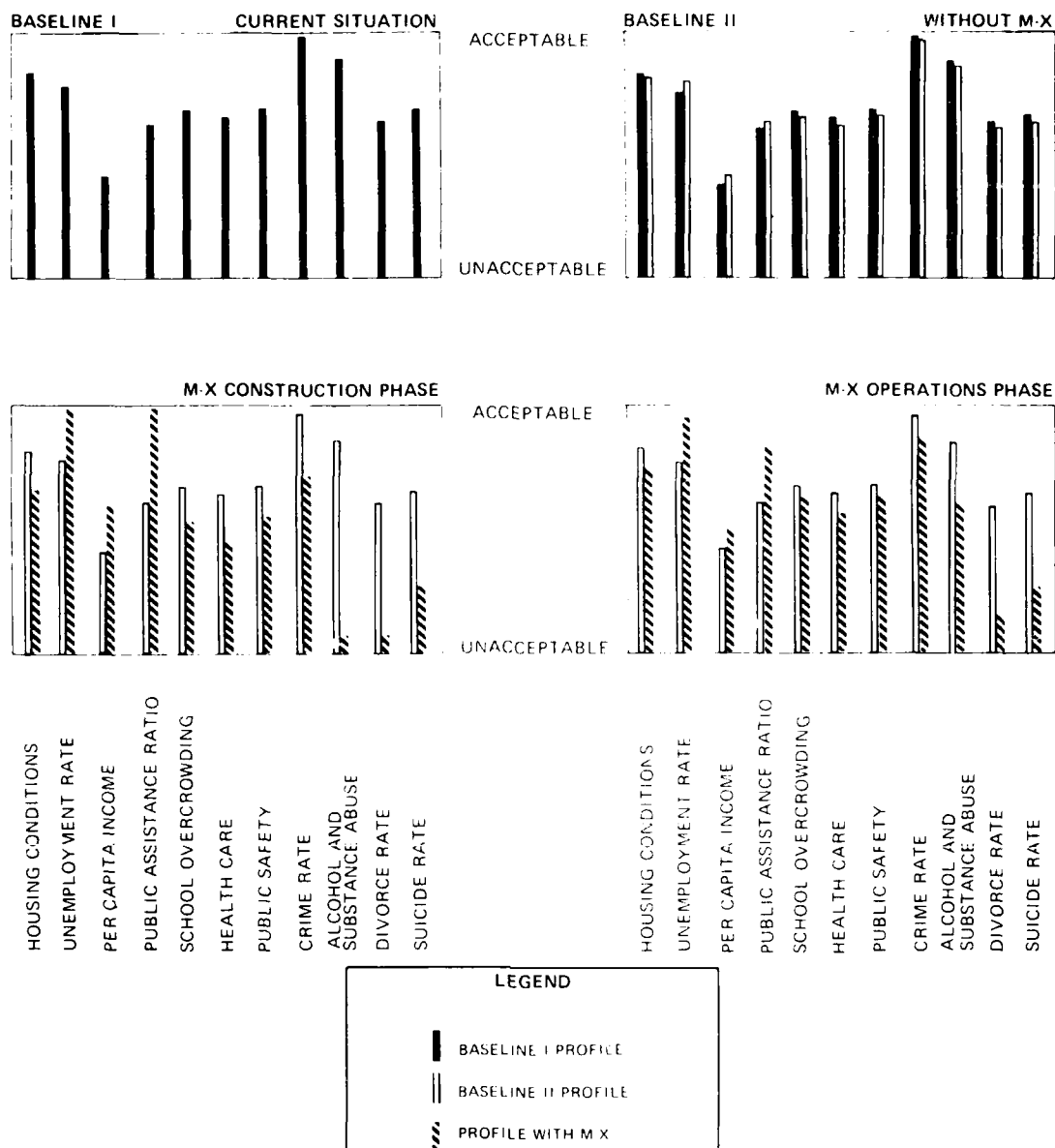
Quality of Life Without M-X

Although the operating base is projected to be located in the vicinity of Dalhart in Hartley County, Texas, it is assumed that the impacts will be felt in the nearest communities.

Since Dalhart is the nearest large community and most of Dalhart lies in Dallam County, the impacts are assumed to be felt primarily in Dallam County. The County is projected to grow at a compound annual rate of only 1.2 percent. Such a minimal rate of growth will hardly alter the present quality of life in Dallam County (Figure 2.1.9-1, upper right quadrant, which shows the Baseline II profile over Baseline I). Data for two of the community service indices, school overcrowding and public safety, are unavailable for the county, and so the respective state average figures were used.

Quality of Life During the M-X Construction Phase

During the construction phase, assuming that an operating base is located near Dalhart, a peak cumulative influx of 13,000 additional people is projected, resulting in a peak accumulative population change of 172 percent over Baseline II in 1988. Up to the peak year, population will be growing at a compound annual rate of 19.5 percent. This rapid pace is likely to noticeably exacerbate housing conditions, which were initially in better shape than the Texas average, bringing them to just below



2496 A

Figure 2.1.9-1. Potential changes in the quality of life profiles of Dallam County, Texas.

state averages, and to tax health care services which were below state standards in baseline (Figure 2.1.9-1, lower left quadrant). Similarly, social disorganization is likely to be increasingly reflected in higher alcohol and substance abuse, divorce and suicide rates, all of which can be expected to become higher than the state baseline averages, and thus detract noticeably from Dallam County's quality of life (Figure 2.1.9-1, lower left quadrant). Crime rates will probably also increase with such a rapid influx of population, but since Dallam County's baseline rate is about 57 percent below the Texas average, the net result will be diminished quality of life, but one that is still better than the state average, as measured by this particular index.

A compound annual growth rate of 19.5 percent, conversely, can be expected to markedly reduce unemployment rates, already below the Texas average. This dimension of the quality of life is important since job opportunities are often cited by rural residents to be one of the critical factors. Similarly, the proportion of the population on public assistance should fall with the added economic activity, and per capita incomes should rise. However, the latter may not be able to rise over the Texas average, since Dallam County's baseline per capita income was 43 percent below Texas's average to begin with (Figure 2.1.9-1, lower left quadrant).

Quality of Life During the M-X Operations Phase

By 1992, the steady-state permanent M-X-related population influx will have fallen and leveled off at some 1,600 additional people representing a 21 percent increase over the baseline population in that year. In the ten years it will have taken to attain this level, the county will have been growing at a 3.2 percent compound annual growth rate. This overall rate of growth is significantly less than during the construction phase and so the effects on the quality of life can be expected to be correspondingly less pronounced. Housing and the community services are not as likely to be overburdened, but the social disorganization as reflected in higher crime, alcohol and substance abuse, divorce and even suicide rates can be expected to be evident, even though the community will have had some time to absorb and adjust to the in-migrants (Figure 2.1.9-1, lower right quadrant). A lower rate of growth will probably also slow down the improvement in the economic well-being indices. The unemployment rate should improve and the reduction in the proportion of the population of public assistance can be expected to leave Dallam County better off than the state average (Figure 2.1.9-1, lower right quadrant). Per capita incomes might reasonably be anticipated to improve as well, but are still likely to be below Texas' average due to the low baseline figure.

EFFECTS ON ENERGY (2.1.10)

The effect of construction and operation of the M-X defense system operating base in the vicinity of Dalhart will be minimal. Very few additional facilities will be required to handle the increased energy demand.

The primary energy-related problem will be the interferences between proposed M-X facilities, oil-producing fields, and pipeline systems.

The projected increase in electrical power demand as a result of the proposed operating base and its related population growth is about 44 MW. The increase in load would require some new transmission and distribution facilities. The additional

demand would not represent a major impact to Southwestern Public Service Company, which can readily supply the bulk power requirements and would handle the planning, engineering, and construction of required transmission facilities. See the Power and Energy Technical Report for detailed information.

Mitigations

Careful siting, taking into account the environmental restrictions and concerns, can mitigate the potential impacts of both fuel and power facilities. Coordination with the utility companies can assure minimum impact on current electrical power and fuel users and assure that the M-X system becomes operational as planned. Similarly, impacts on fuel availability can be mitigated by timely adjustment of allocations. Alternate energy system development and energy conserving construction will reduce external energy demands.

EFFECTS ON TRANSPORTATION (2.1.11)

The population increases associated with construction and operation of an operating base near Dalhart would have a corresponding impact on traffic in the surrounding area. In general, the impacts would be similar to those discussed for the Beryl site.

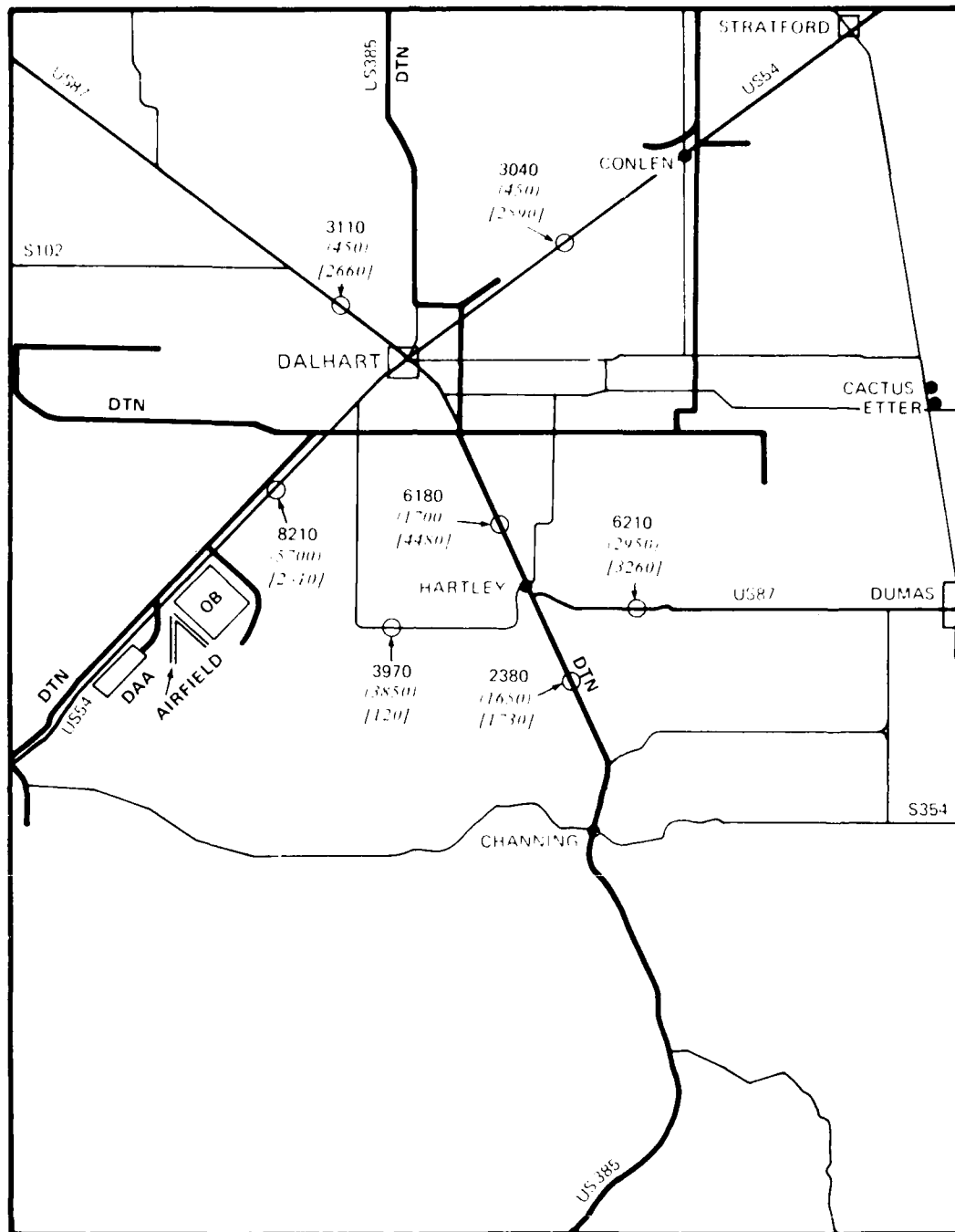
The proposed site is located approximately 10 mi southwest of the city of Dalhart. U.S. 54 would provide the main access to the base from Dalhart, and consequently would experience the largest increase in traffic. A minor county road also passes near the proposed site on the west side and this traffic analysis assumes that a connection would be made from it to the base. This road would then provide access to the communities of Hartley and Dumas and other points south and west. Figure 2.1.11-1 presents future traffic estimated for the vicinity.

The anticipated in-migration of around 1,800 new households would generate around 18,000 trips, or traffic movements on an average day within Dallam, Moore and Hartley Counties. Provisions, in the form of new streets in addition to new housing units, would have to be made to accommodate this growth. However, good planning and orderly development can prevent many traffic problems from developing. When, and to what extent, specific improvements would be required will depend upon the growth patterns that develop. Nevertheless, localized traffic problems would occur at a number of locations on the existing street system within the communities and modifications and improvements would be necessary. The communities likely to be affected the most are Dalhart and Hartley.

Dumas would also experience increased traffic although not to the same extent since it is farther from the base site, and, since it is a larger community, the impacts would probably not be significant.

EFFECTS ON NATIVE AMERICANS (2.1.12)

Native American cultural resources are poorly documented for the entire Texas/New Mexico deployment area. No Native American cultural resources are known for the vicinity of the proposed operating base at Dalhart and no direct impacts are expected. Indirect impacts due to increased population, recreation, and pot hunting are possible. Given the time and distance that separates Native



LEGEND 000 TOTAL 1992 TRAFFIC
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Figure 2.1.11-1. Projected traffic volumes in the vicinity of Dalhart, Texas, assuming second operating base.

Americans from the Dalhart area and the amount of disturbance of Native American cultural resources that has already occurred, little acceleration of disturbance is expected. Impacts on Native American cultural resources in the region are judged, therefore, to be minimal.

There are no Native American reservation, colonies, water resources or land resources in the vicinity of the proposed operating base at Dalhart, Texas. No impacts on Native American physical resources are expected.

EFFECTS ON ARCHAEOLOGICAL AND HISTORICAL RESOURCES (2.1.13)

Specific information on the locations of archaeological and historical resources at the Dalhart OB site is not currently available, therefore, impacts cannot be fully assessed at this time.

OB construction near Dalhart is not expected to have a significant impact on any sites currently listed in the National Register of Historic Places, although indirect impacts on highly sensitive archaeological and historic sites near the tributaries of Rita Blanca Creek and a mesa near the proposed base site can be expected. Predicted high sensitivity areas occur in close proximity to the proposed OB location. Areas near water are potentially highly sensitive. Permanent village sites are present along the Canadian River and its tributaries, and a variety of camping and kill sites are undoubtedly present on the Plains themselves, probably close to water sources. Approximately 21 percent of the area within Dallam and Hartley counties is of predicted moderate or high sensitivity.

Intermittent Spanish and Mexican contact with this area from 1541 until the 1800s, in the form of trading, exploring, and missionary expeditions, probably left archaeological remains near water sources, and in protected drainages. Permanent white settlement in the area did not occur until the late 1800s when the area was mainly used for ranching. During the early 1900s a number of farms and farming communities appeared.

In the northern preferred construction area there are two large playas which would be impacted by OB construction. Playas have a predicted moderate sensitivity for archaeological and historical resources. The southern preferred construction area infringes upon the Punta de Agua Creek and would impact predicted high and moderate sensitivity areas.

The southern portion of the suitability zone impacts the headwater of Romero Spring Creek and a playa, high and moderate predicted sensitivity areas, respectively. The area on the west side of Highway 54 is apparently free of areas of potentially high archaeological and historical sensitivity. Potential direct and indirect impacts of the Dalhart OB are summarized in Chapter 2.

Anticipated extensions of the airfield impact a moderately sensitive area around a playa. Similar areas are scattered through the southern part of the suitability zone; its eastern edge passes through highly and moderately sensitive areas along Rita Blanca Creek.

Adverse impacts to significant architectural resources may occur in Middle Water and Dalhart if such resources are determined to exist there, and population

increases in the Dalhart vicinity will result in indirect impacts to cultural resources in the area, particularly along Rita Blanca and Punta de Agua Creeks. One National Register site, Landergin Mesa, may also be subject to similar impacts.

Mitigation of direct impacts can be accomplished in a similar manner to those at the Clovis OB. The close proximity of Punta de Agua Creek to the construction area renders resources there vulnerable to short- and long-term indirect impacts and protection, data recovery or other mitigative measures may be required. Impacts to architectural resources may be mitigated by preservation of significant structures and design of new buildings in accordance with existing styles.

Because direct or indirect effects to National Register or eligible properties are anticipated and because archaeological or historical resources may be encountered during construction, a program to identify and, to the extent possible, preserve these resources is planned. At the request of the Air Force, the Advisory Council on Historic Preservation has prepared a Programmatic Memorandum of Agreement. This PMOA outlines a program which, if implemented, will avoid or satisfactorily mitigate adverse effects on cultural properties.

2.2 NATURAL ENVIRONMENT

EFFECTS ON VEGETATION (2.2.1)

Construction and operating of the OB near Dalhart is not expected to have significant impacts on native vegetation as the project elements are sited in agricultural land. Indirect impacts to the adjacent Canadian Breaks would cause loss of rangeland and native grassland species. Indirect effects to rangeland from recreation, especially ORV use, may be limited as most of the rangeland is privately built.

Soils will be impacted through several means during construction and operation of the potential OB site near Dalhart. The hazards of water erosion are generally slight due to the nearly level topography, but some can be expected as excavation, earthwork, and other construction activities occur. There is a severe hazard of wind erosion at the Dalhart OB site and this will increase as the dry soils are loosened and moved about, resulting in a need for revegetation.

EFFECTS ON WILDLIFE (2.2.2)

The proposed operating base would occupy primarily agricultural cropland. Expected effects would be reduced wildlife abundance and diversity, primarily with the upland game species usually associated with farmland. Operations are not expected to have direct impacts on the biological resources, although cropland would be lost. Indirect impacts due to local population increase could be expected, particularly from increased recreational uses. The Canadian Breaks, which offers game animal populations for hunting, permanent aquatic habitats with edible fishes and highly dissected topography--attractive for off-road vehicle recreational use--would likely be indirectly impacted.

Construction and operation of the new support community would impact the upland game in the agricultural land and the other wildlife in the stream valley by habitat destruction. Disturbance from construction would tend to drive larger animals southward into the Canadian Breaks.

EFFECTS ON AQUATIC SPECIES (2.2.3)

As the Dalhart OB site is near the Canadian Breaks, some siltation from erosion during construction may occur, but as erosion from farmland is already present, no significant effects from the Dalhart base would be expected.

EFFECTS ON PROTECTED SPECIES (2.2.4)

Due to the intensive agriculture, no protected plants are likely to be found on the OB site, although there are populations in the nearby Canadian Breaks on private land. There are no known populations of protected terrestrial or aquatic animals in the vicinity of the base, although migrating whooping crane and birds of prey may pass through the area. The black-footed ferret was formerly present, but has probably been extirpated. No significant effects to protected species are expected.

EFFECTS ON WILDERNESS AND SIGNIFICANT NATURAL AREAS (2.2.5)

The Canadian Breaks area, mostly rangeland, is adjacent to the Dalhart OB site. No other biologically important areas are nearby. As the Canadian Breaks land is privately held, no significant direct or indirect effects are expected.

EFFECTS ON SURFACE WATER (2.2.6)

Construction of an operating base near Dalhart will use an estimated 1,800 to 3,400 acre-ft of water. Permanent operational water requirements are estimated to range from 2,600 to 3,500 acre-ft per year. Construction and maintenance of the operating base could have an impact on surface water due to increases in runoff and erosion. Storm runoff will be increased by the introduction of impermeable surfaces and channelization loads due to construction. If surface rights are purchased, stream volumes may be locally reduced but reduction of total surface water volume will be partially offset by return flow after treatment, especially during the maintenance phase.

Water erosion impacts at the Dalhart OB site are expected to be low due to the nearly level topography. Where local area of sloping topography exist or are constructed, disturbed soils should be revegetated and proper engineering design should be employed. Long-term impacts are expected to be insignificant if mitigation measures are followed.

EFFECTS ON GROUNDWATER RESOURCES (2.2.7)

A second operating base might be located in Texas about 20 mi southwest of Dalhart. The second OB would include an airfield, support facilities, clear zones, a railroad spur, and additional facilities consistent with use of the base under either a split or full deployment basing mode. The operating base would occupy about 4,000 acres.

Potential Impacts

M-X withdrawals would represent a minor part of the allowable additional development in the region, so no significant impact on water levels, underflow, or

groundwater storage would be anticipated. No springs are reported in the region. The increase in surface runoff during major thunderstorms would be minimal; local increases in sheet and stream-channel erosion may occur. Construction activities could degrade surface-water quality during thunderstorms, but no significant impact on groundwater quality would be expected.

Mitigating Measures

Potential M-X well sites would be carefully selected to avoid interference with existing wells in the region. A numerical simulation model of the region would project potential impacts on local users, and the extraction program would be altered accordingly. An experienced hydrogeologist would supervise site construction. Tests would be performed on the aquifer after construction, and the effect of withdrawals on the local groundwater resource would be monitored in cooperation with state agencies. A local surface drainage system and erosion control structures would be constructed to safely convey the runoff from the M-X operating base site to a regional drainage facility. Temporary retarding ponds would be constructed to reduce peak flows and desilt the runoff water to avoid downstream deposition. After completion of the M-X project, the water supply system may be made available for local use.

EFFECTS ON AIR QUALITY (2.2.8)

The logic employed in the selection of air quality models and limitation of these models in predicting impacts are addressed in Section 1.2.5.

Construction

Figure 2.2.8-1 presents the PAL model results for two representative operating base construction-area source sizes and two emission levels, unmitigated and mitigated. The mitigations case assumes application of enough dust control treatment to reduce fugitive dust by 50 percent. The effective distance to the affected population is taken as 30 mi. The model results indicates that Dalhart should not be significantly affected by OB construction dust.

Operations

Because of meteorological and topographical similarities, IMPACT model results for the Clovis, New Mexico operating base and vicinity were considered representative of the Dalhart OB at the regional level. For general operational emissions, the IMPACT model was run for two representative gaseous pollutants, CO and NO_x. The emission levels were scaled from data from Vandenberg AFB and redistributed to represent the expected operations base configuration. The results show that CO reached maximum one-hour average concentration of 1.3 parts per million (ppm) and NO_x reached maximum one-hour concentration of 0.11 ppm. The CO values are well below both the federal and Texas standards* and so, significant adverse impacts are anticipated. The maximum one-hour average NO_x concentration of 0.11 ppm, while greater in magnitude than the federal and Texas annual-

*The IMPACT modeling results are averaged over a grid which is 4,000 ft by 4,000 ft and do not represent possible local maxima.

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M-X ENVIRONMENTAL TECHNICAL REPORT. ALTERNATIVE POTENTIAL OPERA--ETC(U)

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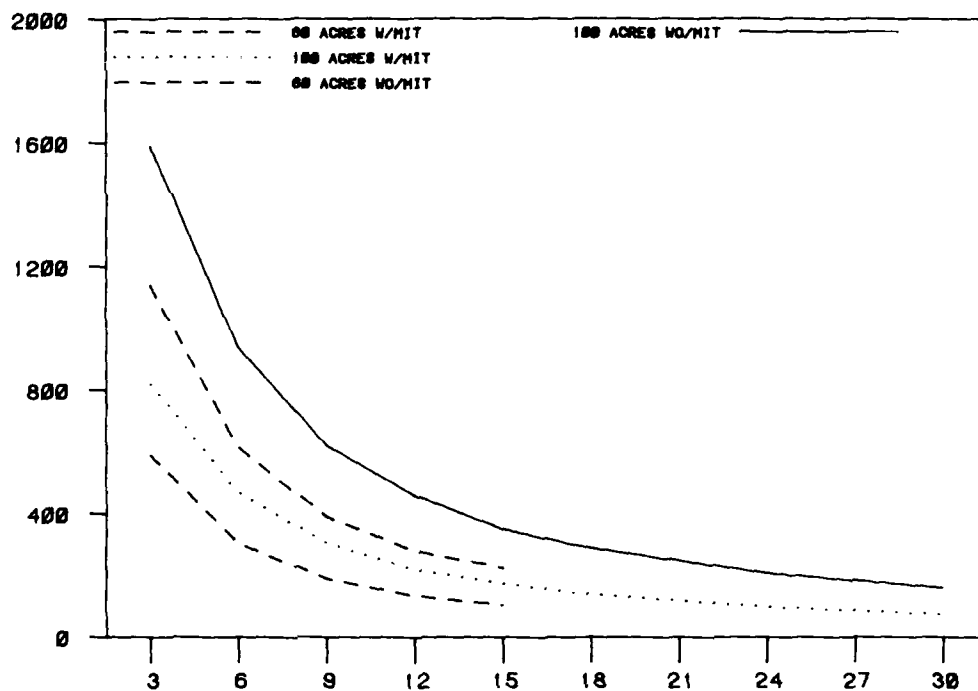
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1 hr PARTICULATE CONCENTRATION

POTENTIAL FUGITIVE DUST IMPACTS DUE TO OB CONSTRUCTION



DISTANCE DOWNWIND (MILES)

3091-A

Note:

- 1) Concentrations are 1-hour averages, reported in micrograms per cubic meters ($\mu\text{g}/\text{m}^3$)
- 2) Meteorological conditions: wind speed = 5 m/s, stable atmosphere, 500 meter mixing height
- 3) Concentrations reported for 60 and 100 acres of construction activity

Figure 2.2.8-1.

average standard, is anticipated to be of short duration and should not lead to any significant long-term impacts. The emissions of SO_x and HC are less than those of NO_x or CO, so the predicted SO_x and HC concentrations would also be smaller. Thus, no violations of the standards at this scale of analysis would be expected for SO_x and HC.

The HIWAY model was used to examine the potential for local maxima of hydrocarbon, CO, and NO_x , one-hour average concentrations associated with peak-hour traffic. The results are shown in Table 2.2.8-1. The maximum predicted one-hour average CO concentration of 10.0 ppm is well below the federal or Texas one-hour average standard of 35 ppm. As there are no federal one-hour average NO_x standards, a direct comparison of the model results with standards is not possible. However the concentrations at these estimated values are not anticipated to be of long duration.

Predicted HC one-hour average concentrations for the peak hour exceed the three-hour average HC standard. It is possible the peak three-hour level would also exceed this standard. Hydrocarbon concentration is of concern because of its role as a precursor to photochemical oxidant formation. Assessment of the potential for oxidant impact due to hydrocarbon and NO_x emissions would require sophisticated numerical modeling techniques.

EFFECTS ON MINING AND GEOLOGY (2.2.9)

The Dalhart OB site is not located near any mining or potential mining activity. It is 15-20 mi west of the Hugoton gas field, but no conflicts are expected. The increased demand for sand and gravel will accompany the OB construction.

Table 2.2.8-1. Dalhart traffic-related pollutant 1-hour average concentrations, in $\mu\text{g}/\text{m}^3$ (ppm), 50 miles from edge of roadway.

CLASSIFICATION	PEAK HOUR TRAFFIC ² VEHICLES/HR	CO	HC	NO _x
Baseline	593	3,201 (2.80)	495 (0.74)	528 (0.28)
Baseline Plus M-X Induced Traffic	2,198	11,457 (10.02)	1,833 (2.75)	1,954 (1.04)

3132-1

¹Meteorological conditions: 1-meter per second wind, 25-meter mixing height, wind parallel to roadway, very stable atmosphere.

²Peak hour traffic is assumed to be 15 percent of the ADT.

